The Builder.

VOL. XIV.—No. 712.

COMPETITIONS are just now abounding. The designs sent in by the sixteen selected competitors for the proposed library and museum in Liverpool will probably be exhibited publicly *before* the committee announce their decision. Several of the designs possess considerable merit. The committee acting on a suggestion made by a committee of the local Architectural Society, invited the competitors to examine and report on the best three designs, in addition to their own, and paid the railway fares of those residing at a distance. These reports were sent in under seal, and by this time have been laid before the committee. We shall look anxiously for the result of this step. But for the weakness of human nature, it would be an admirable course. None should so well be able to detect the weaknesses and appreciate rightly the skill with which difficulties have been overcome in a design (apart perhaps from the question of art), as those who, having worked out the problem for themselves, are fully aware of the requirements. Serving, however, as this course does, to array the judgment and duty of competitors against their immediate personal interest, the result could not always be looked for with perfect confidence. The character of the reports on the present occasion will probably influence the adoption of the step elsewhere.

When a certain number of architects attended Sir Benjamin Hall, at his request, on the subject of the proposed Public Offices Competition, Mr. John Shaw urged the application of the same principle, but his remarks did not elicit any strong expressions in its favour. Turn the question of competition which way you will, there are always difficulties visible. As to the Public Offices Competition itself, the conditions and instructions will be ready for delivery after the 30th inst. These occupy eighteen pages of foolscap paper, and will be accompanied by large and comprehensive plans of the neighbourhood, with especial reference to the design (1) which is sought for the best mode of concentrating the principal Government offices. "The design is also to represent the improvements which may be suggested in the principal approaches to the New Palace at Westminster, as well as in the communications with the Surrey side of the River Thames, especially with reference to the New Westminster-bridge, the ultimate position of which must be considered in connection with this design."

The instructions state that "architects are not necessarily to regard the existing Government buildings, should they interfere with the designs: but it is desirable that as many of such buildings as possible should be preserved and adapted as may be consistent with the integrity of the entire scheme.

Architects desiring to send in models with their designs [for the general arrangement alone] will be permitted to do so, provided the models are made to the same scales; but drawings in frames (other than straining frames) and glasses will not be received."

The time for sending in the designs is extended to the 20th of March, 1857, by which day they are to be delivered at Westminster Hall, where, it is intended, they shall be exhibited.

The following is a list of the principal Government offices, with the approximate area required for each:—

	Approximate Superficial Area in Feet.
The Treasury, including official residences for the First Lord and for the Chancellor of the Exchequer	50,000
The Foreign Office, including an official residence	46,000
The War Department	51,000
The Colonial Office	15,000
The Home Office	15,000
The Paymaster General's Office	15,000
The Exchequer Offices	3,000
The Board of Trade	20,000
The Privy Council Office	15,000
The Departments of the Admiralty (now at Somerset House)	45,000
The Board of Control	12,000
The Poor Law Board	8,000
The General Board of Health	3,000
The State Paper Office	5,000
The Office of Works	8,000
The Office of Woods	8,000
Civil Service Commission, &c.	5,000
The Charity Commission, &c.	6,000
The Ecclesiastical Commission	6,000
The Emigration Office	5,000
Copyhold, Inclosure, and Tithe Commission	10,000

In addition to the offices above enumerated, architects are to provide for farther buildings, to be afterwards appropriated for other departments of the Government, to such an extent as may be consistent with proper open spaces and thoroughfares.

The design (2) for the Department of the Secretary of State for Foreign Affairs is now to include an official residence for the Secretary of State, and this has led to an alteration in the apportionment of the premiums offered. The list, we believe, will now stand as follows:—

"*Design No.* 1.—(*Block Plan.*)

First premium	£500
Second "	200
Third "	100

Design No. 2.—(*Foreign Department.*)

First premium	£800
Second "	500
Third "	300
Fourth "	200
Fifth " Sixth " Seventh "	100 each.

Design No. 3.—(*War Department.*)

First premium	£800
Second "	500
Third "	300
Fourth "	200
Fifth " Sixth " Seventh "	100 each.

The designs in respect of which premiums may be awarded are to become the property of the Government.

If, however, the architect to whom the highest premium may be awarded in respect of the design for either the Foreign-office or the War-office, shall be employed to superintend the execution of the work, he will not be entitled to receive such premium, but he will be paid a commission, at the rate of 5 per cent. upon the outlay. Such commission to include all expenses for measuring, superintendence, &c. except the salaries to clerks of works."

Concerning the other competition proposed by her Majesty's Office of Works, that for the intended Wellington monument in St. Paul's, an architect complains to us that, having addressed the Office, pointing out that the old monuments were "architectural," the figure forming, in fact, a part of an architectural design, as might be seen in Westminster Abbey and in other buildings, and inquiring if designs upon paper might be sent, he was informed that they would not be received. We are not disposed to quarrel with this determination. It seems to us right that all the competitors should submit their ideas in the same material, in order to their being fairly compared. Moreover, it is doubtless expected that the competitors will, in this case, show their power over form as well as in design. The premiums offered, it must be remembered, too, are large; much larger in proportion than those offered for the designs for Public Offices. That the monument may very properly be semi-architectural there can be no doubt, and, indeed, we shall be sincerely glad if it be so: the monumental shrines of the mediæval period, and some remarkable examples of the Renaissance period in the church of St. Denis and at Rouen, to go no farther, rise to recollection to strengthen the wish. It is to be hoped at any rate, that the monuments already in St. Paul's will be carefully studied, in order to learn what to avoid. More than 200 applications for the particulars and conditions have been received by the Office of Works; and 150 copies have been sent abroad through the Foreign Office.*

Looking to another Governmental body, we hear with satisfaction from several quarters that the observations we were led to make in July last on the two branches of the Royal Engineer Department (p. 405, *ante*), promise to be of service. The article of course gave offence in some quarters, and was referred, we are told, to the authorities in London as a libel on the corps. The answer it elicited, however, showed that it was viewed there in a very different light, and that an intention to reorganize the department would probably be hastened. The necessity for alteration is obvious. Two such enormous establishments, one civil the other military, cannot be required; nor is it clear why there should be two classes of civilians, clerks of works and foremen of works, farther than it appears that the clerk of works is *de facto* the civil engineer and architect of the department, whilst the foreman of works is the real clerk of works. Then, if this be so, why not give to each his proper title, and get rid of the interference at least of the junior military officers, whose labours appear more to obstruct than to facilitate the public duties of the department.

Attempts have been made repeatedly during the last twenty years to render the artificers of the Royal Sappers and Miners useful in building-work, as carpenters, masons, &c. and also to bring them into the Royal Engineer Department as foremen of works. Have these endeavours succeeded? We believe not. Although the corps officers persist in their assertions that they are a fine body of artificers, they are in fact but indifferent hands. It is scarcely likely that a good mechanic would enlist as a soldier when he could earn three times as much as a civilian, and enjoy his personal liberty. The sappers, when employed on building-work, are placed under the superintendence of the foreman of works of the Royal Engineer Department, who generally allows them, report says, to amuse themselves as they think proper, giving them out a few tools and materials to work on with, and leaving the public to find out what this "cheap" labour costs.

Another point in the arrangements which seems to require alteration, is the employment of *Assistant Royal Engineers*. At many of the stations in the colonies, the heads of the corps call for more engineer officers from time to time, with the view of increasing their own corps; and failing to obtain an augmentation of their corps, they get authority to employ Assistant Royal Engineers, and for these *Engineering* appointments, they select *Regimental Line Officers!* What would be thought of any civil engineer or architect, if, needing assistance, he made a selection from that quarter? Yet, to carry on the engineering works of this great country, this is the course pursued. Can any

* A design is being sought by competition for a column and statue in honour of the Duke of Wellington, to be erected in Liverpool, too, at the cost of 6,000*l.*

other result be expected, but that these infantry engineer officers will obstruct the works carried on by those so absurdly placed under their orders, or can it be imagined that such appointments are made for the good of the public?

What the clerks of the works say is, as we are now compelled to be the civil engineers and architects of the department, give us the title and pay of such; or let us be clerks of works only, and let the military engineer take his hands out of his pockets, and do the work; or, if he is not able to do it, or the clerk of the works to take the position, let efficient civilian engineers and architects be employed and paid for what they do.

Some alteration, at any rate, is needed, and should be made forthwith.

THE PROGRESS OF ARCHITECTURE IN OUR OWN CENTURY.

THE general condition of art in Europe, the bent of thought and action through various channels operating directly or indirectly on taste, and the magnitude of the effects finally supervening in intellectual progress at the cessation of the war, have required us to give attention to the period at or about the year 1815, at some length. We have not even yet referred to all the influences which were conducing to the later and the present state of art in England and Germany. The fact of having worked out the models in one style, the co-existence of many different fields of study or selection, the love of mere *revivalism* in new works, and a desire to perpetuate the old, and the actual apprehension of only a *portion* of the attributes of architectural art, were so many conditions which were prejudicial to success in new works. Yet the desire to achieve something great was not wanting. In Bavaria, it did not even wait for the termination of the war: in England, the requirement for new churches was pressing. How was the *art* in such works to be expressed, under views of art, mistaken, conflicting, or unmatured? The difficulty was one which had never been presented to architects before, in the same variety of details and collective magnitude. The problem is still only being worked out, and is peculiarly complicated in church architecture.

The architect, however, is called upon *to act*. Supposing that the architects of George IV. or Louis of Bavaria, perceived that nice metaphysical points were involved in the work they were called to do, how were they to settle things which are thought out only in the lapse of years and by the contribution of many observant minds? The public oscillates in taste, heedless of consistency, even in error. It is not for a few architects to penetrate the clouded question, and place the art in a permanently progressing course. Like the old general, we are "beaten by time." Never, however, at any juncture in the history of taste, was the discriminating faculty more needed to ensure the erection of buildings, possessing the attributes of *art*, and having features of permanent interest and intellectual elevation for the public.

In the philosophic mind of Germany, we apprehend that perception that there was a fresh requirement was not wanting. This it was that gave birth to the new science of æsthetics, which long occupied the German sages, before the recent development of the same study in England. Time, however, was required in both countries, for the effect to be perceived on new art.

In the last article on this subject,* we essayed to set forth in words, what were all the attributes of the special art of architecture; and certainly we hardly think—though much has been said of some of these attributes—that the same thing had before been done. For, it appears to us, that whilst the *presence* of all the attributes is necessary to constitute the art, the invariable error made in this century, and maintained to this day by the writers in the newspapers, is in exalting colour, or form, or material, or style, or structural propriety or other element—one of them—and in leaving each of the others totally out of view. Half the truth is often as pernicious in its effects as whole error.

It cannot be too widely known, that even assuming correct views to prevail with practical architects, it is not these which make any actual condition in the art of architecture. Such views even are warped and modified by the prevalent opinions of the public: or, in the necessity of *acting* upon conclusions, directions are taken up which are not easily unlearned. We are driven, therefore, to regard as one of the chief active influences for the production of good art, the state of knowledge and taste existing with the public and private patron. It is a deficiency in this particular which yet retards the prevalence of good architecture.

We repudiate the word *patronage*, in the sense in which, alas! it has been often used by artists. We have no confidence in the value of what pertains to alms-giving: and art only is worth recognition, and valuable in its intellectual results, when it proceeds from a demand expressing the love of it, and the appreciation of its moral influences. Architecture, however, as we had hardly need to state, requires a demand, or it is not created: and though *public* patronage may be of chief moment, it is remarkable how much is in the power of individuals.

Now, the modern fame of Germany in the special art of architecture, has been greatly due—independently of the architects—to one or two "patrons;"—it has, indeed, owed much to a single monarch. It requires something more than the possession of funds, or the feeling of a wish, to exercise the calling of a Mecænas. Voltaire,* as quoted by Mr. Elmes, in our last volume, says in one place, "Colbert, le Mécène de tous les arts, forma un académie d'architecture en 1671. C'est peu d'avoir des Vitruves, il faut que les Augustes les employent." And, in another place, "Il n'est pas aussi facile à un génie né avec le grand goût de l'architecture de faire valoir ces talens, qu'à tout autre artiste. Il ne peut élever de grands monumens que quand des princes les ordonnent. Plus qu'un bon architecte a eu des talens inutiles."

But from king to commoner, we have been singularly unfortunate in the Mecænas family in England. Moreover, we are a people worshipping many things besides intellectual attainments, or even high character and virtue. How much, a sounding name and rank, or reputed wealth, or a certain presence, will carry with it, let every day's story tell. If only,—

"* * * * *Virro* painted, built, and planted,"

though

"Only to show how many tastes he *wanted*;"

or if "some demon" had—

"* * * * whisper'd, 'Visto! have a taste,'"

straightway, reason or no reason, the one has been installed, or the other has installed himself, judge and potentate in such matters as those which affect national credit,—as art does; art, which—what is of even more immediate moment—affects national prosperity, intellectual culture, and material and social happiness. Every bow-window of the clubs, still holds its "Sir Oracle," who, when he *opes* his *mouth*, thinks to "let no dog bark;" and it has been most unfortunate that some of those even, who may have attained considerable learning in particular branches of study, have neglected both æsthetics and the *general* study of styles,—the combined pursuit which we have held to be at this juncture in the history of architecture, more than ever necessary to the just decision upon what steps are to be taken towards the production of anything great. We are *cursed* with "the influence of authority in matters of opinion,"—that is to say, the authority which sycophancy gives to the man with a purse in his pocket, or "a handle to his name,"—leading to the astonishment that pervades the countenance, when *you* "just hesitate dislike,"—you, Mr. perhaps "Blank"—but for your lifetime a student, by lengthened day, and midnight oil, — and the clinching rejoinder, that that very pattern only one hour agone, was chosen by the Duke of Ducats, as well as the Lady Piastre, whom *all the world knows* to be at the head of fashion, and of faultless taste. Such a potentate, only on a wider field, was the great George IV.—of whom as to his capital, it might be said, as of Augustus, "lateritiam accepit;" but of whom, like Augustus, it could not be said that he left it of marble,—either in fact or by figure of speech. That, however, was the comparison drawn in words, by writers who should have known better; for, though by reference to what had existed during some previous years, the change was a remarkable one, and perhaps a fortunate one, the works produced do not form grounds for any very extraordinary congratulation; they are quite unworthy to be set forth as examples of the skill of English architects, and are strikingly inferior in all those elements of architecture which emphatically are the attributes of *art*, to the works which were being undertaken on the continent. Of the English works, however, the terms both of our approval and disapproval have been expressed.

To some, the reputation of a Mecænas appears to convey the idea of the absence of talent, such as it is deemed can be possessed only by those who are—shall we say?—"patronized." To us, it seems, that there is no calling which presents not only scope for so laudable an ambition, but which requires so extensive a combination of qualities. But between an English king and Louis of Bavaria, how great was the difference! The latter erred perhaps in making his capital somewhat of a museum of *imitations*, thereby losing something of the full expression of *art* from what he built; but, in spite of such errors, he "has done more for the permanent benefit of taste during the last quarter of a century, in the small city of Munich alone, than was ever before accomplished, by whole generations of kings, either in ancient or modern times. All the munificence of Pericles, and of Lorenzo the Magnificent combined, would not reach one tithe of the patronage of Ludwig the First, of Bavaria. His works in every department of art are truly surprising, and all accomplished in half the time spent by Louis XIV. over the gorgeous accumulations of his one palace at Versailles."* One great public monument a year was raised by this Mecænas during the twenty-five years; and, independent of architects, about 200 artists were kept constantly employed in decoration,—in sculpture, in painting in fresco and encaustic, in stucco, scagliola, mosaic, and marquetry; besides that during the same time other arts were in full activity, as casting and working in metal, and glass-painting. Indeed, in the last-named, some works of great importance were executed, as the windows which were contributed to Cologne Cathedral. Here, however, again we find ourselves overrunning the years of our present position in the series of this history.

The contrast between the architecture of England and Germany, after the time of the war, is great; and to Englishmen, we fear it must be admitted, is humiliating. Still some advantage may be derived from the comparison. Here are two sovereigns, each commencing about the same time to embellish a capital,—we shall shortly see in what way, and with what results.

In an article in our last volume, wherein we noticed the course of revivalism in Germany, we spoke of German artists, as Overbeck, Cornelius, Schadow, and others, who were resident at Rome, where most of those of the Lutheran Church became Roman Catholics in the year 1814. About this time occurred an event which was probably of great importance in our history. This was the visit to Rome of the Crown Prince, afterwards King Louis of Bavaria. This prince possessed knowledge and taste, and had already manifested a disposition towards the cultivation of the arts. The artists therefore hailed him as a patron, who would secure to them maintenance and fame. They were not disappointed. The prince, having conceived the design of embellishing the capital of his future kingdom, at once attached himself personally to several of the young men, and gave commissions liberally amongst them. The artists, in return, combined to give him a grand festival. A villa was engaged; and the prince was received at the porch by a representation of St. Luke, with an

* See p. 441, *ante*.

* "Essais sur l'Histoire Générale," tom. vii.

* Mr. Wornum's Lecture on "Ornamental Art." *Vide* the *Builder*, vol. viii. pp 340, 341.

inscription bidding him enter and contemplate what *the arts* had done in his honour. Allegorical compliments, both to the visitor and to artists, were exhibited, through the medium of transparencies, busts, wreaths, and devices. Veit had set forth the figures of Giotto, Michelangelo, Raffaelle, Albrecht Durer, and others. Overbeck indicated the part the prince was to play by portraits of Pericles, Augustus, Julius II. and Leo X.; while Schadow, Vogel, and others essayed to portray their own high calling by representations of the downfall of the walls of Jericho, the extermination of the Philistines by Samson, and the cleansing of the Augean stables by Hercules.* "There is no doubt," says the writer in the *Quarterly Review*, "that this visit to Rome laid the foundation of all the royal undertakings that have since distinguished Munich." Indeed, amongst the several projects in Germany, to which, in the course of our notice of Cologne Cathedral,† we alluded as put forth at the time the war was thought to be concluded in 1814, was one for the Walhalla, completed several years later, and for which the King of Bavaria issued a programme for architects to send in designs, in that year. In 1814, also, one of the future great architects of Munich, Friedrich Von Gärtner, was in Italy. There he remained four years. Gärtner, it may be remarked, in 1819, visited England; but from 1820, when he was appointed professor of architecture in the Munich Academy, he was employed at Munich. In 1815, Klenze was royal architect, and in 1816 was commissioned to make designs for a Walhalla. A commencement of this building was made in 1821, as far as regards the preparation of materials, but the structure was not in fact commenced till the year 1830. Meanwhile, great attention had been given in Munich to the study of general art. In another article we shall examine further what were the architectural results. A right apprehension of these is of some moment in England.

"IN OLD THINGS THERE ARE NEW."

IT is surprising that the lessons to be gathered from the pages of antiquity, particularly as applied to social and domestic policy, should have been treated with so little consideration as they have been; and it is curious that in our own country many matters are only now beginning to be appreciated by us, although the example had been set hundreds of years ago by the famous old Romans, who, conquering as warriors, did so much as engineers and architects to advance the condition of this country.

For centuries the highways of England were but quagmires, and almost impassable, yet the Roman roads of far older date may be seen at the present time,—faced by boulder stones, or with such materials as could be readily found in the various localities,—in a tolerably perfect state; and some of them are used at small cost of materials at the present day. During the Caffre war, which caused so much distress to our troops a few years back, when a band of men, called by us savages, set at defiance the British forces, the late Duke of Wellington was applied to for advice. This famous soldier gave it in a few syllables,—"Make roads into the bush." This was the Roman method, which we were obliged in our new way to carry into effect in the Crimea.

In connection with the London of bygone times, the Romans buried their dead outside the city: we have but just acknowledged the wisdom of this practice. It seems, from a consultation of the best authorities, that the streets of London, like the capital city of this great people, were set out, as far as practicable, at right angles. We have since then contrived twisted and tortuous roadways,—and such slums and alleys have, in consequence, been originated, that but for the actual damage they cause, they would be curious and ridiculous.

After the Great Fire Sir Christopher Wren proposed to build the new city somewhat after the Roman fashion: where the Bank of England and the Royal Exchange now stand, he inscribed a circle for the Royal Exchange and other important public buildings, and designed that the new streets should branch in long straight lines, and the interval be arranged in a similar manner: one of these main thoroughfares was Cheapside,—a Roman causeway,—raised above the waters and marshes towards the north. If this wise plan had been carried out, it is difficult to estimate the advantages which would have occurred. In a sanitary point of view the ventilation would have been quickened and drainage simplified. As a matter of policy its advantages can be appreciated by those who have to *ferret* into the crooked lanes and streets of Whitechapel and elsewhere. It is scarcely necessary to mention how advantageous Wren's or the Roman plan would have been for the convenience of the increased traffic. The Roman method has been carried out in the American cities; and all the improvements of the old parts of London at the present day are being carried out, at an enormous expense and inconvenience, on the plans which have formerly been propounded.

In the domestic edifices of the Romans—the remains of which have been found in London and elsewhere—the bath was made a necessary part of the dwelling. We have only as it were the other day acknowledged its utility amongst the poorer classes of the community; and, unfortunately, this important accessory to health has been at present but seldom provided in houses for the families of the middle and even the higher classes. It is however certain, that the sooner we imitate the Romans in this respect the better.

Look at the water supply of modern London; its partial impurity in some districts and certain unwholesomeness in others; the people *fighting* for water in courts and alleys, and left, as is unfortunately still too surely the case, without this cheap yet important necessary of life—begging for water, or travelling to a distance to polluted wells.

The old Romans laid a glorious supply of water, bringing it over hills and valleys from a distance, far from the chance of poison from the refuse of towns, by stately viaducts, beautiful in their architectural simplicity, and so substantial in their construction that to the present day they remain to us as samples of human skill, devoted to a wise purpose, well worthy of imitation.

MOSCOW AND THE ST. PETERSBURG AND MOSCOW RAILWAY.*

THE distance between these two cities is only 150 leagues, yet it is only at *Moscow* that we can understand that fusion of the Asiatic and Slavian civilisation, so strongly portrayed in its buildings, ornamentation, &c. The aspect of Moscow from the railway station is without any striking characteristic, no regular tracing (*alignement*) of streets, like in the city of the Neva. Gardens, which reach up to the frontage of the road, and in which stand mostly low houses, give the whole a very Oriental appearance, to which is to be added the *bizarre* architecture of the churches, the *area* of which is equal to *one-half* of the whole city. Every style of architecture, from the massive temples of Ellora to the *bizarreries* of the Moresque style and the Renaissance, is here represented, if not most artistically, still in an original way. These inflated cupolas, chequered with such glaring colours; these *bizarre* porticos, where the Moresque trefoil and the plain Roman cornice are combined; those steeples, which become suddenly expanded for receiving, like a postament, the gigantic crowns of the Czars; those so much flattened vaults, where (like in *Vassily Blajennoy*) one is almost obliged to stoop,—present all a character of originality, unmatched in any other part of Europe.

The *four hundred* churches which we see at Moscow, exhibit all, more or less, that style *sui generis*, which we may, unhesitatingly, call the *Russian* style of architecture. But it is in the *Kremel* where all this is most strikingly combined. At the feet of the beholder, and beyond the circumference of the wall, flanked by massive towers, which form the entering places to the Holy City, flows the Moscowa silver-waved, and overlaid by huge stone bridges. Farther on extends the city; the roofs of the houses, painted pale green, intermix their colour with a gloomy vegetation, relieved, however, by the innumerable steeples of the Greek churches and monasteries, with which are mingled Mahomedan minarets and Chinese pagodas, as here, in the seat of the grossest absolutism, a perfect freedom of religious credence is tolerated. On the other side of the scene you perceive the cathedrals of the Archangel and the Assumption, in front the steeple of *Ivan Veliki*, where the bells of the Kremlin are suspended. Beside that edifice that fabulous bell, so long *half-buried* in the ground, rests now on a granite socle. In following the course of the river you behold the new palace of the Czars, the front of which exhibits all the rich fancies of the Renaissance style. The other palace is that of the ancient Czars of Muscovy, rich in most curious specimens of the Byzantine and Russian art style. Turning towards the gateway of St. Nicholas are the modern structures, which have replaced those consumed in the conflagration of 1812,—the old and new arsenal, which, however, possess no other merit than their huge dimensions. Strange to say, that in the porticos and arches of the Kremel, notwithstanding all renovation, the vestiges of the great fire of 1812 are still visible in a few places.

The St. Petersburg and Moscow Railway has been opened for the last five years, during which and the next following five years the revenue is divided between the Russian Government and an American company; but hereafter the former will be the exclusive owners. Its construction has been most careful, and no possible comfort has been neglected,—so much so, that its title, "*un chemin de fer de luxe*," is no exaggeration. With the exception, however, of some bridges and viaducts, the work has been one of comparative ease, as the line of the railway, passing through the *gouvernements* of St. Petersburg, Novgorod, Tver, and Moscow, almost in a straight line, is built on even ground. The angles of excavations and fillings up are more obtuse here, which renders earth-slips less frequent, and the rails, placed in double pillions on perfectly well-squared beams, are of a good make. Most of the stations, however, are real architectural monuments, leaving far behind the wood and plaster barns of other countries.

The carriages are constructed after the American model, and are a sort of *chars à bancs*, containing seats for from forty to forty-five passengers. They are divided by a passage (*couloir*), which extends from one end to the other, and through which the guards can pass, the passengers go to the commodity, &c. The 500 wersts between St. Petersburg and Moscow are usually traversed in twenty-two hours, giving an average speed of six leagues (*lieues*) the hour. But Russian railway travellers are in the habit of taking breakfast, lunch, dinner, supper, and tea, for each of which half an hour is allowed. The trains start only once in twenty-four hours from and to either of the two cities, except on special occasions. The aspect of the country near St. Petersburg, as far as Tver, is most desolate and barren, the houses of the few peasants seeming to crumble to pieces; and it is only on nearing Moscow that traces of a nascent civilization are to be met with.

COMPOSITION OF MORTAR.

A CORRESPONDENT says,—"In many places sharp river sand for mortar is costly, and the sand from pits, which is often used about London, is objectionable in ways and for causes which I need not point out to you. Clay is prevalent in most districts, and is often carted away at great cost. The mortar of which I send a sample has been used about two months. The clay is mixed with chalk, and burned in heaps: it is then passed through a crushing-mill, worked by steam, and water is added when the compound is required for use. No other lime is used than the chalk burned with the clay. The piece sent is a fair sample cut out of a wall in the course of fixing a stone staircase."

The specimen sent is extremely hard, considering its early age.

* See the *Quarterly Review*, No. CLIV. "Modern German Painting."

† See *ante*, vol. xiii p. 517.

* "Moscou en 1856." Moscou, publié par Ordre du Gouvernement. 8vo.

MECHANICAL DEVELOPMENT.

INSTITUTION OF MECHANICAL ENGINEERS AT GLASGOW.

AT a meeting of this Institution, on the 17th inst. Mr. Whitworth, on taking the chair, delivered an opening address on topics more or less connected with mechanical engineering. After describing a small measuring-machine, by which a difference in length of the 1,000,000th part of an inch may be detected, the chairman said,—"This question of correct measurement is in immediate connection with another, which will repay all the attention that can be given to it; and I think there is no subject that can be more profitably discussed among us;—I mean that of proper gradations of size in all the various branches of the mechanical arts. I think no estimate can be formed of our national loss from the over-multiplication of sizes. Take, for instance, the various sizes of steam-engines—stationary, marine, and locomotive. In the case of marine engines, the number of sizes up to 100-horse power will probably not be short of thirty, where ten perhaps would be ample. If so, look at the sums expended in patterns, designs, and in the number of tools for their manufacture. Nor is this all; for if there were only ten sizes instead of thirty, there would be three times the number made of each pattern, and, as you know, the very soul of manufacture is repetition. By attention to this, the ship-owner would be benefited by getting a better engine at a less price. In the case of locomotives and carriages I would urge the subject on the attention of our members, the engineers of the great lines of railway,—the London and North-Western, the Midland, the Great Northern, for instance. I hope they will permit me to suggest that they should consider and determine, not only the fewest possible number of sizes of engines and carriages that will suffice, but also how every single piece may have strictly defined dimensions. This question is also well worthy the attention of our architects and builders. Suppose, for instance, that the principal windows and doors of our houses were made only of three or four different sizes; then we should have a manufactory start up for making doors, without reference to any particular house or builder. They would be kept in stock, and made with the best machinery and contrivances for that particular branch; consequently we should have better doors and windows at the least possible cost. Our friends across the Atlantic manage matters in connection with their buildings much better than at present we do. I hope the members of this institution will join me in doing what we can with reference to those two important subjects—correct measurement and its corollary, proper gradations of size. The want of more correct measurement seems to pervade everything. Take, for instance, the case of the common brick, which ought to be 3 inches thick. Who is there that has made an addition to a building that has not felt inconvenience from the irregularity of size?—the new brick being perhaps too thick, and so not allowing sufficient mortar to be used; or too thin, and requiring too much mortar. Perhaps one of the most effectual means that could be adopted, in the first instance, to remedy this unsatisfactory state of things, would be for the Government to supply corporate bodies with proper standards of length—such as the inch, the foot, and the yard. The corporate bodies themselves might then have their own standards of size founded on these, and made to suit the particular wants of the different trades in the locality. The only standard of length at present supplied by the Government, and kept by the corporate bodies, is the standard yard; but there is so little attention paid to accuracy that to the engineer and machinist it is not of the slightest use, and is only employed to adjust yard sticks for measuring woven goods. There is also another subject which bears upon this question, and which has lately been brought before the legislature,—that of decimalizing weights and measures. There can be no doubt of the beneficial results that would follow the passing of such a measure. There may be a difference of opinion as to what the unit or integer of lineal measure should be; but I am of opinion that it should be the inch; for, from the accuracy with which we can now measure that length, there would be no difficulty in determining and fixing the length of its multiples. The most important divisions of length in mechanism are those of parts of an inch, and if the length of the inch were altered it would cause much confusion. Small accurate standards of length, of the decimal parts of an inch would be of much service to some trades. There is now no standard of appeal; and the different wire and other gauges differ so considerably that the manufacturer, in the case of small wire and sheets of metal, has to send a sample of what he wants, there being no means of correctly expressing its size. Although I have said so much to you with reference to the desirableness of farther improvement and greater perfection in the mechanical arts, I congratulate you on the success which in our time they have attained, and the high consideration in which they are held. Inventors are not now persecuted as formerly by those who fancied that their inventions and discoveries were prejudicial to the general interest, and calculated to deprive labour of its fair reward. Some of us are old enough to remember the hostility manifested to the working of the power-loom, the self-acting mule, the machinery for shearing woollen cloth, the thrashing-machine, and many others. Now, the introduction of the reaping and mowing machine and other improved agricultural machinery is not opposed. Indeed, it must be obvious to reflecting minds that the increased luxuries and comforts which all more or less enjoy are derived from the numerous recent mechanical appliances, and the production of our manufactories. That of our cotton has increased during the last few years in a wonderful degree. Comparatively few persons, perhaps, are aware of the increase of the production during our lifetime. Thirty years ago, the cost of labour for trueing a surface of cast iron, by chipping and filing with the hand, was 12s. per square foot: the same work is now done by the planing-machine at a cost of labour of less than 1d. per square foot; and this, as you know, is one of the most important operations in mechanics. It is therefore well adapted to illustrate what our progress has been. At the same time that this increased production is taking place the fixed capital of the country is, as a necessary consequence, augmented; for in the case I have mentioned of chipping and filing by the hand, when the cost of labour was 12s. per foot, the capital required for tools for one workman was only a few shillings; but now, the labour being lowered to 1d. per foot, a capital in planing machines for the workmen is required which often amounts to 500*l.* and in some cases more. This large outlay of capital, invested in machinery to increase production, makes it impossible to curtail the hours of working machinery as much as could be desired. In some cases two sets of workpeople have been employed in relays, each working eight hours a day; and this system, perhaps, may in time be extended, although it is attended with certain inconveniences. If, however, the relay system could be so improved and organized as to allow more time for the better education of young operatives none would more cordially rejoice than myself. I believe that mechanics, though a mere material power in itself, may, if rightly used, become a moral lever, by which, like Archimedes of old, we may seek to raise the world. There is at the present time a very gratifying circumstance in connection with the extension of machinery—viz. the large remuneration which the operatives receive compared with those who perform hand labour without the help of machinery. I would here mention, with reference to the amount of wages paid to the operative, that it does not solely depend on the master manufacturers of this country, but is governed in some measure by what is paid by the manufacturers of other countries who are in competition with our own. When in America, in 1853, I found that the American operatives received somewhat more wages than are paid in this country; but they worked much longer hours, although the climate during some part of the year is so unfavourable. These longer hours enable the American manufacturer to turn over his capital more frequently. This question of increased production, with which we as mechanical engineers are so identified, is so entirely dependent on the power of the people to consume, that I hope I shall be excused in adverting to it. Our yearly exports now amount to about 100,000,000*l.* sterling, having doubled in a short time, while our home productions have been greatly increased from the same cause—the increased ability of our people to consume. As a general principle, it would seem to be far better to levy a small impost on the entire wealth of individuals rather than to fasten a tax on particular objects, which if produced would constitute wealth, but which are not made because of the threatened impost. The proprietors of land may rest assured that in the future development of mechanical improvements none will be more benefited than themselves. I do not hesitate to say that all harvest operations on land properly laid down will very shortly be performed in one-fourth the time required with the hand labour now expended, by the farther application of machines worked by horse power. This is my conviction, based upon the experience I have had in the successful working of the machine I constructed for sweeping the streets, at the same time filling the cart, by horse power. By the combined aid of mechanical improvements and the science of chymistry, together with the greater skill of our modern agriculturists, the culture of the land throughout Great Britain must more and more approximate to that of a garden. We have seen the effect of the repeal of the duties on glass and bricks in the improved appearance and reduced cost of residences, and a still further benefit may be expected to result from the removal of the remaining duty on timber."

MR. BESSEMER'S PATENT PROCESS FOR MAKING MALLEABLE IRON.

TIME, as yet, in place of entirely settling the merits of this new process, only accumulates an increasing mass of contradictory assertions and opinions regarding it. While one class of objectors declare that the process evolves no extra heat at all, and that the metal still remains crude iron, another class allege that the heat is so intense that a new cupel must be erected, at great and impracticable cost, on every occasion, as the fire-bricks are melted and the vessel destroyed at every making of the metal. As to the qualities of the metal actually produced, too, there are the like contradictions; one announcing that it turned out to be mere rotten iron, and another that it produced articles of excellent quality. May it not be that, although purified from carbon and sulphur, phosphorus, or other crudity by the new process, the metal requires to be either cooled very slowly, to enable it to assume the fibrous or tenacious state, *or re-heated*, though not puddled; and that in those cases where it has been said to have turned out well, and produced articles of good quality, the re-heating requisite even to shape the articles so produced constituted an essential element in the favourable product; while in other cases, where a want of tenacity or consistency was met with, there was no such adequate or sufficient re-heating, or re-cooling rather. Of course, if re-heating and slow re-cooling be essentially requisite, the value of the process is, to a certain extent, diminished; but still, if actual puddling be not necessary to the production of malleable iron or steel in this way, an immense advantage would be gained, and perhaps even the extra heat attendant on the process itself might be ultimately expended in protracting the cooling process so as to anneal the metal as it were, and obviate the necessity of even re-heating.

We do not mean to add to the speculations and opinions, however, already entertained on this interesting subject, but shall confine ourselves to a mere record of such alleged facts as appear to be of importance in their bearing on the final determination of the points at issue.

The *Engineer* states that—

"A piece of one of the bars made at Woolwich, from iron refined by Bessemer's process, was heated and rolled out to a thin sheet, at one of the Wolverhampton mills. With a view to its being rolled yet thinner, the sheet was then doubled, again heated, and again rolled, when it came out duplicate pieces of No. 23 gauze, 12 inches long by about 4 inches wide. These were then

annealed in the manner customary in the finishing of sheets so thin, and when cold were submitted to the following very severe test. They were taken to a tobacco-box maker in the same town, and, still cold, were punched out to the required shape for such an article. Operated upon first lengthwise and then across, the resistance was the same—perfect. It seemed as ductile as a piece of good block tin. In the words of the workman conducting the operation, 'it was as tough as leather.' The box was completed and the burnishing tool applied, when a polish was produced, that, if the process had been continued a little while longer, would have 'equalled,' the operator said, 'the polish of steel.' 'A better bit of iron,' this man said, 'I never worked.' The only perceptible flaw that the excessive punching which the shaping of the box required, was one of very minute proportions; and this the burnishing tool removed easily. The dimensions of the piece of bar from which these Lilliputian sheets were rolled, were, length about 4 inches, width about $2\frac{1}{2}$ inches, and thickness about, we think, $1\frac{1}{16}$ inch. *Before being broken it had been nicked and had broken very short*—the bar being to all appearance devoid of all the usual appearances of fibrous iron; *and yet, after being submitted to the heating and rolling processes* which we have described, it became malleable to the very great extent required to stand successfully so severe an ordeal."

These results seem to support the ideas we have broached: they would also explain why others have found the metal yielded by the very same experiment to be apparently so bad. Even the purest of glass forms but indifferent, or, at least, brittle, and hence comparatively worthless articles, unless annealed. May it not be so with the purest of iron, even admitting Mr. Bessemer's to be so, till also annealed, or unless protractedly cooled?

The experiments at Woolwich alluded to by the *Engineer*, and reported in the *Society of Arts Journal*, have apparently militated much more against than in favour of the immediate product of Mr. Bessemer's process, so far as regards tenacity, but they may be subject to the considerations already suggested. The metal was found to be crystalline, yet approaching to fibrous iron in tenacity: it is to be remembered also that the product of the experiment witnessed by various iron-masters was said to be semi-steel only, or at least not malleable iron, the metal having been poured out before it attained to the malleable state. At Woolwich, however, the cooled metal *was* re-heated, in whatever way it may have been re-cooled.

Till it be fully proved, if it can be, that Mr. Bessemer's process is really valueless, it is but fair to put the most favourable construction on its merits, since no actually great and important discovery was ever all at once matured, or ever so manifested itself from the outset as to defy criticism and to be without failure.

A strange letter from Mr. David Mushet appears in last week's *Mining Journal*, in which he charges a patent-agent with very questionable conduct in regard to the preparation of the specifications of the American patentee, Mr. Martien, after he had also prepared, unknown to that gentleman, the specifications of Mr. Bessemer's patent. The most remarkable circumstance in respect to this new view of Mr. Mushet's is that while he now expatiates by inference as largely on Mr. Martien's prospects, as he formerly did in relation to those of Mr. Bessemer, which he now affects to depreciate and pity, he asserts that Mr. Martien publicly performed, in November last, "precisely the same operation from which Mr. Bessemer has been deriving such *éclat*." This, he says, was "witnessed by a host of incredulous and astonished spectators;" and yet we find Mr. Mushet, who had been expressly invited to examine Mr. Martien's plans, and witness his astonishing experiments, expressing, in the *Mining Journal*, only a few weeks back, his own unbounded astonishment and admiration at *Mr. Bessemer's process*, which had just been published at the Cheltenham meeting of the British Association!

We pointed out, a week or two ago, what appeared to us to be an essential point in which Mr. Bessemer's patent overrode Mr. Martien's, namely, inasmuch as Mr. Bessemer contemplated the purification of the metal at once into steel and malleable iron, on the great scale, in a special vessel or receptacle; while Mr. Martien only specified the infusion of air into the pig metal, as it flowed from the crude furnace, through the gutters or channels, to the pig moulds. Now, however, we are told by Mr. Mushet that, although Mr. Martien explained his process to the agent, while preparing his specification, in such a way as ought to have secured for him this very "receptacle," or vessel,—

"Mr. Martien was very much surprised to find that, according to the English patent law, his brief and comprehensive *provisional* specification would not cover any claim for refining liquid iron, except while the iron was flowing in a channel or gutter from the blast-furnace, and that he was debarred from refining the iron in a 'receptacle,' and that it was necessary to *strike out* of his draft the word 'receptacle' wherever *he had inserted it*. It is true the provisional did not contain the words channel or gutter: it contains no limitation whatever: it claims the searching and complete penetration with air of the liquid metal 'as it comes, or after it has flowed, from a blast or smelting-furnace, and prior to its congelation in the shape of pigs or otherwise.' It was also true that this claim, which Mr. Martien sought the best reputed advice in order to secure in the amplest manner, had been actually and publicly proved, *not* in a channel or gutter, but in a 'receptacle.' Puzzled and perplexed by such apparent contradictions, Mr. Martien could do nothing but bow with great unwillingness to English patent law, as expounded by a celebrated agent: he never dreamed, nor could have dared to dream, that there was a secret patent, filed under the proper secrecy of six months' protection, being carried forward in the same office, attempting to give another man the title to use Mr. Martien's sole invention in a receptacle or 'colander!'"

One would have thought that in such a case, it is Mr. Martien who ought to be pitied as a Tantalus; but no: it is Mr. Bessemer from whose lips the "full cup" is about to be "dashed!" It may be so; but certainly Mr. Mushet's explanation seems to be anything but clear, unequivocal, or satisfactory.

MODEL LODGING-HOUSES IN FRANCE.

THE following observations have been addressed by Mr. Henry Roberts, architect, to the Society for Improving the Condition of the Labouring Classes:—

Having very recently had an opportunity of examining the two earliest establishments formed in France, on the general plan of our model houses, I think that a short account of them may be interesting to you, as well as to other members of our committee, and perhaps be suggestive of some useful practical lessons.

The Model Lodging-house at Marseilles is a large and imposing pile, built for 150 unmarried men. It is outside the town, in a healthy situation, but evidently too far from the daily occupation of the class for whose benefit it was constructed; and the many advantages it offers, being not sufficiently appreciated, do not practically counterbalance this objection. The consequence is, that a considerable number of the chambers are generally unoccupied, although the rent has been reduced to six and seven francs per month, according to the floors.

Whilst, in the main features of arrangement, our George-street house has been taken as a model, nearly double the space is given to the separate compartments provided for each lodger: the expense of construction has in proportion been consequently greatly increased.

A *restaurant* forms part of the establishment, and involves a heavy loss, owing to the small number of persons who use it. The superintendent expressed a strong opinion as to the improbability of such an appendage to a model lodging-house being likely to prove self-supporting, as, in all probability, but comparatively few of the inmates would be customers with sufficient regularity to admit of an adequate supply of provisions being dressed without the risk of constant waste.

Baths are also supplied in the house, but these cannot pay the cost and expenses.

A very respectable merchant, who takes great interest in the establishment, and the lead in its management, told me that, in a pecuniary point of view, it is altogether a failure, as, notwithstanding the subvention of one-third of its cost being paid by the Government, the 150 proprietors receive no dividend. In regard to its moral effects, he doubted whether they are more encouraging. The only obvious benefit appears to be that of the health of the inmates, no death from cholera having occurred in the house.

The Government has been anxious that houses for families should be built at Marseilles, where they are much wanted; but so great is the discouragement caused by the want of success in this first effort, that the large subvention which they have offered in aid remains untouched.

At Mulhouse, a manufacturing town on the line of railway between Basle and Strasbourg, the population of which has doubled within the last ten years, a *cité ouvrière* has been built by an association of manufacturers, on a scale more extensive than that of any other similar establishment in France. Although without the town, being in the vicinity of several large factories, the workmen therein employed are its principal occupants, and all the houses appear to be tenanted.

A spacious road, planted on either side, runs between the main groups of cottages, and parallel roads run behind them. They consist chiefly of groups of four dwellings, forming a detached block of building, placed in the centre of a square plot of garden ground, which is divided equally between the tenants. Two of these dwellings front the main central road, and two the minor or back road—an economical arrangement in regard to cost of construction, and one which admits of good internal ventilation.

The dwellings, though not precisely uniform in their disposition, have mostly a wide entrance, fitted up with a cooking-stove and sink. Beyond is a staircase leading to three bed-rooms and a closet. The remainder of the ground-floor is devoted to the living-room, with a large recess behind the staircase, of sufficient dimensions to contain a full-sized bed. This compartment has a side window, and, in some cases, being partitioned off from the living-room, forms a small separate room.

There are, besides these, several rows of double houses, built back to back, each having a narrow strip of garden ground. They are let at much lower rents than the others; but their arrangement cannot be commended as consistent with good ventilation; and the general appearance of the tenants indicated a decidedly inferior class of occupants, with considerable want of cleanliness and propriety.

The progress made in the construction of these houses has been:—In 1853, there were 100 built; in 1854, there were added 86; and in 1856, 40 more, together with a spacious and well-arranged building for baths and washhouse, with another for a bakehouse and public kitchen, conducted by a *société alimentaire*. In this establishment food is prepared and sold at cost prices: it may be either consumed on the spot, or taken home: in the former case, a payment of 75 centimes is required for three months' right of admittance to the refreshment-rooms. A breakfast, consisting of bread, coffee, and milk with sugar, costs 15 centimes, or $1\frac{1}{2}$d.; a dinner of soup, bread, meat, and vegetables, from 20 to 30 centimes, or 2d. to 3d.; and supper in the same proportion.

The intelligent manager of this establishment, which has been fully organized only about two months, told me, that in order to its being self-supporting, from 500 to 600 persons must be daily supplied with food. The progressive increase of customers warrants the expectation that the object of the founders will in this respect be realized.

To revert again to the dwellings: out of the 186 completed up to the close of the past year, seventy-five have been sold to tenants at cost prices, exclusive of the outlay on the roads, drainage, fencing, and planting, which were paid for out of the government subvention of 300,000f. or 12,000*l*. being one-third the amount of outlay of 900,000f. The cost of the houses has averaged from 72*l*. to 120*l*. each.

The managing director, M. Bernard, to whose zeal and activity may, doubtless, in the main, be attributed the measure of success which has been obtained, spoke much of the difficulties he encountered, resulting from the administration

of the law in France with reference to tenants, and the expulsion of such as proved unworthy. He remarked that it was invariably the best who became purchasers; and that the payments, whilst attended with much trouble, owing to the smallness of the sums received, and frequent irregularity of payment, produced the important and gratifying effect of inducing industrious and frugal habits, as well as in producing that feeling of self-respect and honest independence which appears to be much better understood amongst the working-classes in England than in France.

In a sanitary point of view, the experience here has been the same as in all other like cases. And whilst alluding to this important consideration, I may add, in proof of the enormous expense which a defective sanitary state sometimes involves, that the chief magistrate of Genoa lately told me cholera had put the authorities of that city to an expense of 12,500,000f. chiefly in providing relief for those who, from the defective state and confined atmosphere of their dwellings, were the greatest sufferers.

VENTILATION OF HOSPITALS.

THE importance of this subject, commented on in your leader of last week, induces me to offer a few remarks on those parts which bear particularly on ventilation.

In the summary which you educe from Mr. Roberton's excellent paper, you remark, "that modes of ventilation called *scientific*, which may answer for mere dormitories, fail in an hospital."

It is impossible for me to urge, more strongly than you have done, the great importance of ventilation in hospitals. The influence upon the sick, of an atmosphere charged with the emanations of disease, and the fatal effects, arising from a want of change in the poisonous air of the wards, engendering erysipelas, and other endemic diseases, are patent to all of any experience in these buildings; and the works of military surgeons prove that the per centage of recoveries, which is greater in their temporary hospitals than in our permanent buildings, arises principally from their temporary construction allowing the winds of heaven to blow freely through them. These may be said to be *naturally* ventilated. But, however desirable this system may be, it cannot always be carried out in the hospitals of our great cities.

In these the area is necessarily limited, and the height of the wards diminished, and it is under these circumstances that the necessity for ventilation is greater, and the means of obtaining it *naturally* becomes more difficult.

"Windows facing each other on the opposite side walls," which you so properly advocate, cannot always be obtained, and without this arrangement the movement of the atmosphere, instead of passing through, and thoroughly changing the air of the wards, displaces it from one part of the hospital to another. But even when opposite windows can be obtained, they cannot in all weathers be opened, and ventilation should be *constant, day and night*, and in amount such, that no difference can be perceived by the sense of smell between the freshness of the air of the wards and the external air.

These conditions cannot *constantly* be obtained except by artificial ventilation.

In trying experiments on the air of the wards of the Middlesex Hospital, previous to their being ventilated, I could not detect any difference in the smell of the air at the level of the floor, or even up to 4 feet from it; but from this height to the ceiling, the air became gradually more fœtid, until at the latter level, it was quite overpowering; but after the upper parts of these wards were connected with a powerful extracting shaft, little or no difference could be detected in the quality of the air at the different levels. This proves strongly the benefit derived from *artificial ventilation with an upward current*.

While speaking of this hospital, I may mention a circumstance indirectly bearing on this question. In one of its wards erysipelas constantly attacked patients who were placed in certain beds. For some time the cause could not be discovered, but on closing and ventilating a dust-bin placed outside of the building, near this part of the ward, no erysipelas afterwards occurred. The position and ventilation of the water-closets are, as you say, most important, and demand especial attention, more particularly as it is necessary for the convenience of patients, that they should be situated as near the wards as possible, and the emanations from them being sure to contaminate the atmosphere of the wards if allowed to enter.

The most certain method of preventing this, is to *ensure* a current of air always setting in *from* the *wards* to the water-closets, and this has been provided by Mr. Mennie for the Royal Victoria Hospital, by connecting the water-closets, with a powerful extracting shaft, which means have been proved at the London and other hospitals, to have perfectly effected the required ventilation. WM. JEAKES.

*** With further reference to the Royal Victoria Hospital, we are requested by the architect to say that "cement dressings" are not to be used, but that it is to be built of red bricks and Portland stone, with a granite plinth. We had our information obligingly from the architect himself, and made a note of it at the instant. It was doubtless a slip of the tongue, and we most gladly rectify the statement. As to the position of the "latrines," notwithstanding the provision made for their ventilation according to Mr. Jeakes, we must reiterate the hope that the position of them will be altered. Several correspondents have written to confirm our statements touching the condition of many of our hospitals. Dr. Roberton says,—"I have inspected a considerable number of our provincial hospitals, as well as a majority of those in London, and so unhealthy are many of them, that I confess I see no remedy for such a calamitous state of things without some exposure such as would result from the labours of a Commission of Inquiry issued by Government."

FOREIGN INTELLIGENCE.

Berlin: New Museum.—At the beginning of winter a fresh portion of the Berlin Museum will be opened to the public, comprising the ethnographical collection, placed in three saloons on the first floor of the southerly part of the edifice. The bulk of the collection consists of the stock of the former *Kunst Kammer*, and the collections made by Prince Waldemar in India. The Mexican antiquities, hieroglyphics, &c. are exhibited in cases of old Mexican fashion. Asia alone occupies nearly two saloons. A model of a reed house from Borneo, and Indian and China lackered ware, models of alabaster and ivory, water-colour drawings on glass, &c. are amongst the most interesting specimens of the Berlin ethnographic collection.

The Cathedral of Cologne.—The northern tower of this building is progressing towards completion, the material used being the *basalt-lava* of the Perlenkopf, one of the volcanic summits which form the mountains between the Laacher Sea and the Aarthal. The *basalt-lava* of the Perlenberg is even harder than that of Niedermending: in fact, it may be considered the hardest building-stone hitherto known. The pillars, which have to serve as buttresses to the walls and vaults of the lateral nave of the north and south portals of the dome, have also been begun.

Vienna.—The models for the *Kaiserhalle* of Speyer exhibited here, have been much approved of. They will be placed in the niches of the chief portal, and represent Maria with the infant, Stephen the Martyr, &c. The basso-relievos for the interior of the hall are to be made by Pilz, of Rome; the statues of the Emperors by Dietrich. Some of the pictures of the Gallery Manfrin have arrived here: a fine St. George, by Andreas Montagna, a superior and well-preserved picture. A plan of Vienna, of the time of the Babenberg dukes of Austria (1300), has been found, which the Vienna Academy of Sciences will shortly publish.

The Antiquarian Associations of the South of Germany.—The associations of Cassel, Darmstadt, Mayence, Wiesbaden, and Frankfort, have combined for the editing and publishing of their joint transactions. The last number of the *Periodische Blätter* of these historical and antiquarian societies contains "A Roman Colony in the Niederlahngau;" "Unedited Antiquities of Mayence and Environs;" "The Merovingian Churchyard at La Chapelle St. Eloi," &c.

Switzerland. — An Art-loving Parish.—The parish of Ragaz, the place where Schelling died, and where King Max has erected him a monument, has, through their communal and federal superiors, expressed to the king their acknowledgment for honouring their township with the memorial of such a man. They say that they are sure that the Supreme Powers of the Swiss Republic will, for all time to come, respect and protect this monument of the piety of a monarch towards his teacher.

Photographical cards.—They are making visiting cards in Germany, whereon, besides the name, the portrait of the party is engraved. Some odd anecdotes have resulted from this novel industry.

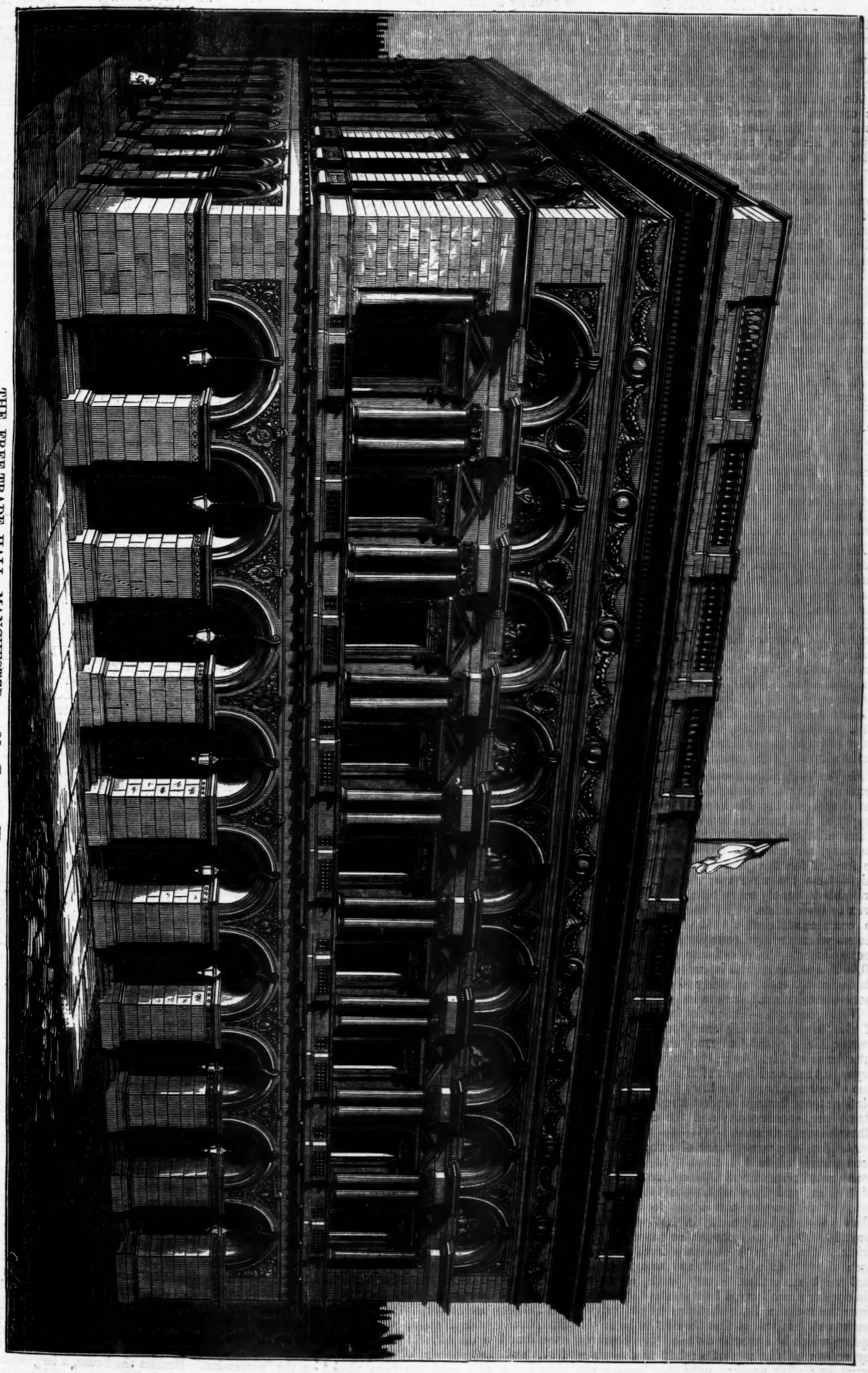
THE NEW FREE-TRADE HALL, MANCHESTER.

THE new Free-Trade Hall in Manchester, built on the site of the hall bearing that name, in which the Anti-Corn-Law meetings were held, is to be opened in October next.

Our engraving represents the exterior of this very handsome building, for which Manchester is indebted to the skill and taste of Mr. Edward Walters. It has been raised by subscription, by not very many gentlemen of Manchester, and has cost 25,000*l.* without fittings, such as for the gas, or ultimate decorations. Mr. George Hurrap was the builder; Mr. J. Hollins, the mason. The building, externally, is of Yorkshire stone. The principal front, it will be seen, consists of two main stories, the ground-floor forming an arcade of nine arches, with broad piers and plain archivolts, imposts, and block cornice, but having the spandril spaces filled with the arms of different towns in foliage; and the upper story, of greater height, having a range of three-quarter Ionic coupled columns, with pedestals and blocks of entablature, bearing archivolts with consoles, above which is the main entablature of the building, with its frieze enriched with medallions and festoons, the whole building being terminated by a balustrade. The spandril spaces of the range of arches last named are enriched with wreaths and circles of red granite, and the semicircular panels in the arches are filled with alto-relievos by Mr. Thomas. Immediately below these, a narrow panel, ranging with the cornice of the order, contains a fret. The windows have architraves, trusses, pediments, and balconies. The building derives considerable effect from the width of its angle piers, which are without quoins, and are undecorated except by the lines of the several horizontal impost and other mouldings.

In the grand hall the walls above the gallery have coupled attached columns with entablatures, forming piers, with arches cutting into the great sweep of the cove of the ceiling: the room is lighted by five circular openings, and seventeen openings in the cove round the hall. The proportions of the room are somewhat different to those of ordinary large rooms, being 78 feet wide, and only 52 feet in height; and yet it has not the appearance of a *low room*. The object of the architect has been to produce a good room for speaking in. The length of the hall is 135 feet. There are seventeen panels with centre flowers in the ceiling, and in these flowers are sun lights, containing some eighty burners in each. These lights, as yet, are only partially understood. When properly formed, with flues of the necessary size, the heat rushes towards a centre, and the flowers themselves should never be *soiled* by the gas. The hall is not yet painted, the work not being dry, and the money not forthcoming. This would require at least 4,000*l.* more.

In addition to the hall, the building includes an assembly-room, 76 feet by 37 feet 6 inches, and 28 feet high, with a separate staircase; a drawing-room, 40 feet 6 inches by 24 feet, and 24 feet high; a supper-room over the assembly-room, and various other apartments. The extent of the principal front is 153 feet, the total height of it 75 feet. The building covers an area of 2,300 square yards.



THE FREE-TRADE HALL, MANCHESTER.—MR. EDWARD WALTERS, ARCHITECT.

PROVINCIAL NEWS.

Taunton.—A fatal accident occurred at the new Shire-hall here on Wednesday before last. From the evidence before the coroner, reported in the *Bridgwater Times*, it appears that two workmen were on a brick wall about the middle of the building, taking off the braces from the couples. As one of the men was taking down one of the rafters, having one end of a rafter in his hand, and the other end of the rafter being on the back of the couple, he went to pull it off, when the end of the rafter slipped off the couple, struck against the wall, and knocked him off the wall. He fell down 23 feet on a joist below, and from thence to the ground, a farther distance of 14 feet, and was killed. The rafter was 4½ inches by 2¼ inches, and 18 feet in length. His fellow-workman had a rope in his hand, which the deceased ought to have tied to the rafter before he attempted to wrench it from the couple. The former, in his evidence, stated that he told the deceased that he would tie the rafter to the couple, but as he was going to do it the accident happened.

Portsmouth.—The Government, it is said, have resolved to open a communication between Portsmouth and Langston harbour, by a canal, 200 feet wide, and 13 feet 9 inches deep. The plans and specifications are said to be ready, the contracts to be shortly taken, and the work commenced. Farther schemes are also said to be under consideration, which, if carried out, will not only render Portsmouth impregnable, but will make it one of the largest government establishments in the world.

Hastings.—The ceremony of laying the first stone of the general drainage of Hastings was performed on Saturday last by the Mayor, in the presence of most of the members of the corporation. The stone was laid near the Rock-a-Nore Groyne, where Mr. Munday has commenced his contract for the carrying out the drainage of division A. Several coins were deposited in the stone; also a scroll, with an inscription upon it. Mr. John Laing, C.E. is the surveyor.

Sheerness.—Messrs. Kirk and Parry, of Sleaford, are said to have received an Admiralty order to build a new military hospital within the fortifications of Sheerness.

Bedford.—Application is to be made at the next meeting of the local commissioners for permission to lay down main pipes for the supply of the town with pure water. In the event of the application being successful, a company, according to the *Bedford Times*, will be formed for the purpose, the supply to be raised from the river near Clapham, and made available to supply every house at a small cost, even to their attics. The reservoir is intended to contain sufficient for the flushing of the sewers when an improved system of drainage is accomplished. The estimate is said to be 10,000*l.* and the capital intended to be raised in shares of 5*l.* each, securing 6 per cent. at a moderate calculation for the investment.

Wellingborough.—The works for the sewerage of this town are being executed by the contractor, Mr. Richard Anderson, under the superintendence of Mr. Dixon, the engineer and surveyor to the Local Board of Health. The main line of sewer through the town approaches completion: those through Market-street and Oxford-street are commenced; and the one through Church-lane is finished.

Halifax.—In consequence of a report having been circulated to the effect that the newly-constructed reservoir at Ogden, five miles west of Halifax, and from which the town is now supplied with water, was likely to burst, the place was visited on Sunday in last week by at least 10,000 persons from the surrounding districts. The reservoir stretches itself over an area of forty acres of land, and was in depth last week more than twenty yards, at which time water was observed to commence springing from the rocks a little distance below the embankment. It was at first thought to be an old spring which had become diverted in its course by reason of the workings; but new springs burst one after another, until they became six in number, which again united at a short distance, and, on being measured, it was found that the quantity discharged amounted to 3⅔ cubic feet per second, equal to the amount required to supply the mills in the vale below for manufacturing purposes. On Friday in last week the reservoir was visited by members of the town council, who, on inspecting the works, determined to ease the pressure of the water by opening the clow a little, so that the escape was then, taking into account the escape at the rocks below the embankment, about 10 cubic feet per second, which in twenty-four hours' time lowered the water in the reservoir 19½ inches. "As to the probability of the embankment giving way," says a local paper, "it is out of the question altogether, but what means will be adopted to stay the discharge of water alluded to we have not yet heard suggested by any one; nor have we heard on whom the expense will fall." We are afraid there are more than one reservoir in the country needing inspection and care.

Doncaster.—The tender of Mr. Robert Wood, for the enlargement of the infirmary at the union workhouse, and other improvements connected with the washhouses, has, it appears, been accepted by the local Board of Guardians. For the joiners' and bricklayers' works, &c. the amount is 365*l.* This, however, does not include the plumbing, which has been given to Mr. John Walker, at 43*l.*; making a total of 408*l.* From the highest to the lowest tender there was a difference of 137*l.* The contract is to be completed by the end of the present year, under the superintendence of Mr. Godfrey.

Stirling.—For some time past, a spacious goods shed has been in course of erection at the station of the Scottish Central Railway here, the former having been quite inadequate for the increasing traffic. The building is now approaching completion: it is 200 feet in length, by 80 feet in breadth: the walls are 19 feet high, and to the top of the ridge of the trussel roof the height is about 36 feet: the great span of the roof is unprovided with central supports. The architects are Messrs. A. and A. Heiton, of Perth, who have been the architects of many similar works, including that of the goods shed at Edinburgh, and the engine sheds at Perth. They were also the architects of Mr. Russell's residence at Falkirk, and other gentlemen's mansions in this and adjoining counties. The builder was Mr. Stevenson, from Aberuthven. The woodwork was done by Messrs. Currie and Taylor, of Stirling; the slate-work of the roof by Mr. Morrison, from Glasgow; and the glazier was Mr. Alexander M'Donald, of Stirling. The wood principals, iron tie-rods, and iron suspension-rods were supplied by Messrs. Tod and Sons, of Edinburgh. Counting-houses, &c. are attached to the building.

CHURCH-BUILDING NEWS.

Barton.—The consecration of the Barrow-on-Humber burial-ground took place on Monday before last, commencing in the church, which is being restored. The new ground is situated on an elevated part of Thornton-road, about half a mile from Barrow. The chapels are in the Early English style, from designs of Mr. D. W. Aston, of Hull, architect. They are of equal dimensions, and adjoin each other. The ground is two acres in extent, and enclosed with a wood fence and quickset-hedge around the sides, and in the front is a brick wall and iron pallisading.

Stanwick.—The Church of St. Lawrence, Stanwick, has been restored, and was re-opened on Tuesday in last week. The church was formerly blocked up with high pews of various sizes, a large stove mounted on a high brick base in the centre aisle, a west gallery for the organ and singers "done in Doric woodwork," and the arch between the tower and nave blocked up with rough boarding. The roof of the nave was of rough timber, and of so low a pitch as to cut across the arch alluded to, so that a portion of it was visible outside above the lead of the roof. Now the seats are open and uniform, and correspond, says our authority, the *Northampton Herald*, with some ancient ones found in the church. The pulpit, prayer-desk, and lectern are of oak, panelled and carved. A new roof has been placed on the aisle, and an entirely new roof has also been placed on the nave, of the original pitch, and covered with Collyweston slates. This has brought the whole of the tower arch inside, and, all other obstructions having been cleared away, the tower is thrown open to the church. The simple lancet window at the west end, and octofoil over, have both been filled with stained glass. The glass is the gift of Lord Sidmouth, and is the work of Messrs. Clayton and Ward. All the stonework inside has had the whitewash removed, and has been restored, and the walls re-plastered. The porch has a room over, the entrance to which was formerly blocked up, but is now opened, and a new oak door provided. The other doorways have also oak doors, with ornamental ironwork for the hinges and locks. The old font has been cleaned and preserved. A new window has been put in the chancel, and the seats there are placed stallwise. The stonework outside has been repaired, and new stone crosses placed on the gables. The works have been executed by Mr. Eaton, of Titchmarsh, under the superintendence of Mr. William Slater, architect.

Hungerford.—A new chapel was opened at Hungerford, on the western border of the New Forest, on Tuesday in last week. The chapel was erected under the superintendence of Mr. Jurd, of Southampton. It is calculated to hold, including a gallery at one end, about 300 persons. There are pointed windows on either side, and a triple-arched window at the gallery end.

Wells.—On Wednesday in last week, the first stone was set of the new portion of the screen in the cathedral of this city. The new part will project 5 feet from the old, and will be 17 feet in length. The new organ, built by Mr. Willis, of London, will be put up as soon as the masonry is sufficiently advanced.

North Petherton.—The consecration of the new cemetery here took place on Friday before last. The architect, under whose superintendence the works were done, was Mr. J. C. Knowles. The ground extends over about two acres; a portion of it being devoted to the Dissenters, the division being effected by suspended iron chains. The style of the chapel is Gothic, of thirteenth century. The entire outlay involved in the completion of the cemetery (including purchase of land, enclosing the same with stone walls, iron railings, gates, erection of chapels, and other incidental expenses), according to the *Bridgwater Times*, will be about 1,800*l.*

Flaxley.—A new church erected close to the old, at Flaxley, in the Forest of Dean district, was consecrated on Thursday week. The new edifice was designed by Mr. Scott, and built by Mr. James Coleman, of Westbury. It is in the Decorated style of architecture, and is built of red-grit stone from the forest, with grey-stone facings. The internal fittings are of oak. There is an east window by Jarente, an alabaster altar screen by Philips, and the font and pulpit are constructed of Painswick stone, with marble columns. An organ of fourteen stops with couplers, built by Grey and Davison, has been put up in the building.

Market Drayton.—The consecration of the new church at Hales took place on 11th inst. This church was lately erected and endowed at the sole expense of the Rev. Alexander H. Buchanan, of Hales Hall. It was built under the direction of Mr. Scott, and is of red sandstone, lined with white ashler, and in the style of the latter part of thirteenth century. The carving was executed by Mr. Philip, of London; and the stained windows, seven in number, were the production of Mr. Ward. The church is calculated to contain 180 persons.

Bingham.—The interior of Bingham Church is undergoing decoration, from designs by the lady of the rector. The eastern windows, of tinted glass, on which are representations of the Evangelists, were the work of this lady.

Aston.—The presbytery connected with St. Michael's Church, Aston, is just completed. It stands on the site formerly occupied by the ancient hall, and the more recently built monastery, which was removed in consequence of its foundations having given way. The Rev. Canon Huddlestone, the new rector, for whom the work is being executed, is about to take possession. Besides the house, a large sum has been expended in building a new aisle and otherwise repairing the church, which had fallen into

a very bad state of decay. The work has been carried out under the direction of Mr. Pugin, and the contract was taken by Mr. Hutton, of Wolverhampton.

Southport.—The foundation-stone of the new church in Birkdale Park, near Southport, was laid on Saturday week. The architect is Mr. Alfred Rimmer, and the builder, Mr. Richard Wright.

Saltaire.—The original plan of Saltaire included the erection of a Congregational church. Designs of the intended edifice have been prepared by Messrs. Lockwood and Mawson, of Bradford, and the ceremony of laying the foundation-stone is to take place on 27th inst. The church will be a large edifice in the Roman Corinthian style of architecture. The principal front will consist of a circular colonnade detached from the building, above which will rise a pedestal, supporting a cupola and dome, 130 feet in height to the top of the vane. The sides and end will be also decorated with Corinthian pilasters, and a frieze and entablature. In the interior the walls will be relieved by three-quarter columns in verd antique marble, with Parian caps and bases, supporting a circular ground ceiling of rich design. The length of the body of the church inside will be 90 feet by 45 feet, exclusive of entrance and apse. The extreme length, from east to west, will be 140 feet.

Penistone.—The chief stone of the new church of Saint Ann, at Carlecotes, in the parish of Penistone, Yorkshire, has been laid. This church is being erected at the expense of Mr. John Chapman, of Mottram (and late high-sheriff of Cheshire), at a cost of about 5,000*l.* exclusive of the ground on which it stands, which is also presented by the founder. The site is in close proximity to the old manor-house of Carlecotes, and the church will hold about 200 persons. A school-house and parsonage will also be included in Mr. Chapman's gifts to the inhabitants. The church will be of stone, from a design supplied by Mr. Shaw, of Saddleworth, who is the architect of the building. It will be in the Gothic style, with a belfry over the roof at the western end.

Barnsley.—The new Congregational church, Barnsley, is now nearly completed, and was to be opened for public worship on Thursday. The chapel, which is situated on the right hand side of Regent-street, includes nave 82 feet 10 inches, by 37 feet, in the clear of seven bays, the four last bays being thrown into a double transept on each side, two bays being devoted to each transept, and divided on each side by a lofty column, from which springs a double arch. At the front is a tower and spire, the base of which forms the principal entrance to the interior of the edifice, a second doorway being placed on the opposite side of the building. At the upper end of the chapel is placed the pulpit, on a raised dais of two steps, with an ornamental screen at the back of it, dividing the organ-gallery from the chapel. Behind the chapel, and with entirely separate and distinct entrances, are a public vestry, 21 feet 10 inches by 16 feet 6 inches; a minister's vestry, 13 feet 6 inches by 9 feet; a girls' school, 30 feet by 16 feet 6 inches; a boys' school, 37 feet 10 inches by 16 feet 6 inches, with three class-rooms on the first floor. The style of architecture is Early Decorated. The front of the chapel consists of a four-light window, with a three-light on each side of it, the whole under one label moulding, and giving the appearance of a window with ten lights. Above these, and divided from them by an enriched string, is a circular window contained in a spherical triangle, with column, &c. the gable finishing with an ornamental finial. The spired tower attached to this main gable of the nave is 19 feet 8 inches square at the base, and is divided into four stages, the lowest having a doorway surmounted by a crocheted pediment, terminating in an enriched finial. The topmost stage is pierced with two windows, of two lights each, in either face, and the tower itself finished with canopied pinnacles rising up from the angle buttresses at each corner. The spire springs from this, and, with the exception of two tiers of spire-lights, is kept quite plain. The height of the tower is 73 feet; the whole height to the top of the vane on the spire being 167 feet. In addition to the large window, the nave is lighted by two-light windows, filled in with tracery in each bay. Each transept has a coupled three-light window under a hoodmould, with a small window in each gable. The chapel will seat about 600 adults on the ground-floor, and there is an end gallery which will accommodate about 150. The works have been designed by Mr. Joseph James, of London, architect, and have been carried on under his superintendence, assisted by Mr. Whitworth, of Barnsley. The contract exceeds 4,000*l.*

Castle Douglas.—The foundation-stone of an Episcopal chapel was laid at Castle Douglas on 10th instant. The site, as described by the *Dumfries Courier*, is a little to the end of the town, at the head of the Carlingwark Lake, and directly in front of the Grove House. Some progress has been already made in the erection of the works. The church has been founded by Colonel Johnston, of Carnsalloch, assisted by Mr. R. J. Congreve, and a few other subscribers. The plan of the building, which is to be erected in the Early English style, is cruciform, consisting of a nave and chancel, to which a northern vestry and a southern organ-chamber form the transepts: over the vestry will rise a tower and spire. The interior will be seated, in the first instance, for 120 persons, but with capabilities of enlargement, should necessity require it. The seats will be open. The stone used for the quoins, mullions, windows, and all external ornamental works, is Dalbeattie granite: the walling, which is the gift of Mr. Gordon, of Greenlaw, is of Silurian, and the interior decorative stone is sandstone from the neighbourhood of Carlisle. The roof will be of oak timber, framed with arched ribs, and covered with slates of the country. The design was furnished by Mr. E. B. Lamb, of London.

STAINED GLASS.

Goole.—Messrs. C. and A. Gibbs have just fixed two stained-glass memorial windows in Luddington Church, Goole, one in memory of Mrs. Lister, provided for by her widower, Mr. James Lister: the other has been given by Mr. John Richardson, of Northland House, Winterton Brigg, Lincolnshire, to the memory of his father and mother. The west window has been also filled in with stained glass by the same artists.

Ely.—Mr. Wilmhurst has just fixed a stained-glass window in Ely Cathedral. It is a Norman window, in the baptistery, called St. Catherine's Chapel, 9 feet 6 inches by 4 feet 5 inches. The subject is the Baptism of our Lord by John the Baptist. It is the gift of the Rev. William Gale Townley, of Beaupre, near Wisbeach.

Kettering.—Stained-glass traceries are being put in the windows of the north aisle of Kettering Church, to correspond with the south, which is already decorated. The traceries represent the twelve apostles, and the work was executed by Messrs. Webb and Nixon.

Bildeston.—A large window on the south side of the chancel of Bildeston Church has just been restored and reglazed, as a memorial to the late Rev. Charles Johnson, fifty-three years rector of this parish, and Catharine his wife, and to Ann Gedge, daughter of the late James Johnson, mother of the Rev. J. Gedge, the present rector. The tracery in the head contains the symbol of the Trinity; the Vine (John xv.); a stem and ears of wheat (John vi. 48, Mark iv. 28); and the Rose and Lily of the Valley (Cantic. ii. 1.) The three principal compartments are filled with diapered glass, bordered, and scrolls bearing the texts,—"I am the Way and the Truth;" "No man cometh to the Father but by me;" "I am the Resurrection and the Life;" beneath which are the three obituary inscriptions. The work was executed by Messrs. Chance, of Birmingham.

Birmingham.—A memorial window has recently been placed in the east end of the chancel of Ward End Church, by the family of the late Mr. Isaac Marshall. It consists of three large lancets, in the style of the latter part of thirteenth century, and the glass is designed in the style of that period, the finest examples of which are in the celebrated "five sisters' window," in the north transept of York Minster. In the centre light, enclosed in the symbolical *vesica piscis*, is a figure of Our Lord ascending. The light on the north side contains the Virgin and Child. The Virgin holds in one hand a lily. In the light on the south side is a figure of St. Margaret, to whom, in conjunction with the Virgin and the Holy Trinity, the church is dedicated. St. Margaret bears in one hand a sword, the instrument of her martyrdom, and in the other a palm branch. These figures are placed under canopies. Above them, in the midst of the grisaille ornament, which constitutes the general groundwork of the window, are the emblem of the Holy Trinity, the Lilly, and the Martyr's Crown, with palm branches. Medallion groups below the figures illustrate David showing and explaining to Solomon the plan, building, and dedication of the Temple. These particular groups were selected in especial reference to the pecuniary and personal assistance afforded by the Marshall family in the erection of the church. Mr. Wailes was the artist. It is intended to fill some of the other windows of this church with stained glass. The Rev. J. F. Green, the incumbent, wishes, it is said, to have memorial windows offered for this purpose.

Coventry.—The subscription in this city for a memorial window to the late Colonel Hood has so far advanced, as to admit of the work being proceeded with. The subject, in accordance with the wishes of the family, will be the Ascension of Our Lord, and also figures of eight prophets from the Old Testament. The window, which is to be completed by the 1st of December next, has been entrusted to Messrs. Heaton and Butler, of London.

Devizes.—A memorial window, by Messrs. Gibbs, has just been placed in Shrewton church, Devizes, Wilts, to the memory of Mrs. Nicholls. The window has been given by the widower, Mr. John Nicholls, of Shrewton House, Devizes. This is the second memorial window executed by the same artists for the family of the Nicholls, and placed in the same church.

THE LATE DR. EMILE BRAUN.

MANY of our antiquarian readers will hear with regret of the premature death of Dr. Emile Braun, of Rome, the well-known antiquary and the secretary of the Archæological Society of that city. He was attacked by *la perniciosa*, and died, during the absence of Madame Braun, who was in England, at his residence on Monte Caprino. Dr. Braun's acquirements were very extensive; and he had directed his attention to many branches of art and industry. His annual course of lectures on the Antiquities of Rome, his Handbook to these Antiquities, published not long ago, and a new material for casts invented by him, and described in this journal at the time, will be best known to our readers. The very fine model of the Coliseum, in the Crystal Palace at Sydenham was made under his direction. His death must be regarded as a general loss.

THE METROPOLITAN BOARD OF WORKS.

I CANNOT in any way admire your patience and forbearance towards the Metropolitan Board of Works.

Two separate sets of Commissioners of Sewers were dismissed for not carrying out an effectual method of sewerage of London, and a representative Board was then tried. About this time Prince Albert told us that representative government was then on its trial.

This representative Board had the advantage of all the information obtained by the former commissions and their surveyors and assistants just as they had got ready for action. Notwithstanding these advantages, they have showed themselves incapable of action,—more so than can be charged against any other body. Who is it that would venture to value a fellow creature's life, and what can the man or the men be who would presume to do this with thousands of such lives? The members of the Metropolitan Board of Works are the most thoughtless, or else the most sinful and wicked body that ever met together. They have been denounced so by all I have heard speak of them, and those are neither few nor unimportant, but such as may be relied on for sound judgment. They are complete obstructives to the proper sewerage of London, as well as all other healthful improvements. Many of your readers have expressed their astonishment that you have not ere this commented on their shameful neglect of their duties. S. P. X.

THE SHIPWRIGHTS' STRIKE.

AT the Central Criminal Court, on 18th instant, ten shipwrights pleaded guilty to the charge of conspiracy to prevent workmen from entering the service of the prosecutors, Messrs. Young, Son, and Magnay; but, on the recommendation of the prosecutors, the judges, Baron Bramwell and Mr. Justice Williams, they were merely ordered meantime to enter into their own recognizances to appear and receive the judgment of the court if they should be called upon to do so.

Baron Bramwell, in delivering this interim order, said he would ask them to listen to a bit of advice which might be useful to them and others in a similar position of life. The law had been very rightly laid down that they had a right to refrain and refuse to work for any person except upon terms that were satisfactory to themselves. This was only reasonable, but they must remember at the same time that they had no right whatever to coerce and intimidate others from accepting employment; and it was clear that such a proceeding amounted to the most insufferable tyranny. In these times, when everything was done to remove all impediments to commerce, when ancient corporate rights were abolished for that object, and when working men were allowed facilities by the abolition of apprenticeship and other similar rights, it was intolerable that any set of men, for their own selfish purposes, should set up a tyranny of such a description. For his own part, he would much rather live under one intelligent despot, whose knowledge of the world and whose education would induce him to exercise his tyranny, at all events, in a sensible way, than be subject to the tyranny of a set of men who did not possess any of these qualifications. He should be glad to know what the defendants themselves would say if the agricultural labourers of the country—a class which they, no doubt, considered infinitely beneath them so far as intellect and education were concerned—were to assemble together and pass resolutions that they would only work six hours a day, and endeavour to coerce, and bribe, and intimidate those who would not join them? He was sure they would say these were a set of stupid, ignorant fellows.

The Shipwrights' Union have, it appears, thrown away no less than 4,000*l.* on this lunch question, and have utterly failed, after all, in their purpose, their late employers having taken into their employment more reasonable workmen, who have resolved not to allow their fellows to tyrannize over them and their employers.

AUSTRALIAN NEWS.

AT Adelaide, the city corporation, by the last accounts, were about to introduce into the Legislative Council a Bill for a Building Act, which appears, from an abstract given by the *Adelaide Observer*, to follow much in the train of the London Building Act. The Government had just laid upon the council-table a Water Supply Bill for the city of Adelaide, providing for a constant supply of water from the Torrens, to be realized by funds, raised in bonds bearing 6 per cent. interest, to the extent of 280,000*l.* the sum of 28,000*l.* to be annually appropriated as a redemption fund. The ultimate investment of the works in the municipal corporation is provided for, and municipal authorities may in the meantime be appointed as commissioners by the Governor. The paper just alluded to complains of the apparent apathy of the inhabitants as to this measure, and endeavours to excite an interest in the question of drainage as well as of water. The Port Adelaide waterworks had just been provided with an engine imported from Dundee. By its means, a power of twelve horses is employed in drawing and forcing up a column of water to a height of 35 feet into eleven galvanized iron tanks, seven capable of holding 1,000 gallons each, and four 3,000 gallons each. From these reservoirs the inhabitants of the Port are supplied with water.

A public library and reading-room had just been opened at Angaston, according to the *Adelaide Observer*.

The free Presbyterian Church at Gawler has also been opened. This church, which has been built by Messrs. English and Brown, at a cost of about 1,350*l.* is regarded as decidedly an ornament to the town: it is the only building with a spire as yet in the colony. About 300 persons can be accommodated in it. A debt of about 500*l.* still remained on the church.

In Victoria colony, the daily papers are devoting great attention to railway subjects. The proceedings at Adelaide, or in South Australia, and those in New South Wales, had evidently spurred them on. A surveyor from the Government department at Sydney, had lately taken an overland journey from the Murray to Melbourne, to report on the facilities that exist for a "through" line to connect Sydney and Melbourne, and to invite the Victoria government to join with Sir William Denison in promoting the early formation of such a line. The tenders for the Mount Alexander line from Melbourne had been opened, but the result was not known.

The Government of New South Wales and Victoria, relying upon the co-operation of South Australia, had resolved to lay down a line of electric telegraph between Sydney, Melbourne, and Adelaide. The cost of construction was estimated at about 64*l.* per mile. The direction of the line will probably be from Sydney, *vid* Liverpool, Goulbourn, Yass, Gundagai, Albury, and Beechworth, to Melbourne; thence *vid* Ballarat, Belfast, Portland, and Penola to Adelaide.

WINCHESTER CATHEDRAL.

WORKMEN are now engaged, under the direction of Mr. John Colson, architect, in throwing open to the public the south-west side of the cathedral; and in doing so a fine arcade of five Norman arches has been exposed to view. These arches formed the north end of the Chapter-house. The foundations of the Chapter-house have been exposed, as well as those of other Norman buildings which formerly stood near. It is interesting to watch the removal of the accumulated rubbish and earth, as every day's work brings to light something for the study of the archæologist. The work, when completed, will be a great improvement to the Close and cathedral.

COMMERCIAL-STREET CHAPEL, WHITECHAPEL.

IN opening main roads and noble streets, or forming railways in the metropolis, it is necessary to reinstate interests disturbed. If it is worth while to form a long perspective of lofty mansions, or to ride royally over the heads of lowly buildings and abodes, it is equally worth while to pay pleasantly for the damage done to the houses, and to reinstate handsomely the institutions that are upset. By so doing, not only is the immediate object in view secured, and justice done to those dispersed, but they are led to seek the advantage of sites in the new thoroughfares, on which to erect buildings of more value than those they have left. And so those whom it is necessary to turn out, to make way through a densely-populated district, become the occupants and improvers of the vacant ground in the streets opened out for the purposes of metropolitan improvements.

An instance in which this principle has been carried out is afforded by a chapel recently erected in Commercial-street, Whitechapel.

In the progress of time steam, by two new lines of railway, invaded the retreat of thought and prayer of a people who had erected it after emerging from another sort of persecution in years gone by. Under the then circumstances, they took advice as to how they should escape from discord and distraction. A claim, not only for damages but for entire reinstatement, was put in, and was simply left in the hands of Mr. Tite, the railway company's architect, by whose award, with between 3,000*l.* and 4,000*l.* in addition to it, they have erected the new chapel in Commercial-street, Whitechapel, from the designs of Mr. Joel F. Earle, architect, to seat about 800 persons, at the following cost, including everything except legal expenses:—

Freehold site, 88 feet by 85 feet.....	£2,900	0	0
The chapel, external dimensions, 78 feet by 52 feet 9 inches, and 60 feet high from the basement floor to the ridge of roof; the lecture-room and school-room, external dimensions, 41 feet 6 inches by 27 feet; and vestries, class-rooms, &c. occupying a space of 85 feet by 12 feet	6,760	0	0
Total	£9,660	0	0

The entrance to the ground-floor of the chapel is by a Roman Corinthian portico of two columns *in antis*, through a central lobby 16 feet by 8 feet, and so by two smaller lobbies into the body of the building. The entrance to the gallery from the portico is by two stone staircases, each enclosed by lobbies. The portico stands on a granite plinth 5 feet high, the gift of Mr. J. Freeman. Two independent columns, with pilasters grouped on each side, form the portico; the staircases to the galleries are in the spaces thus enclosed by pilasters of the portico.

The chapel and school are fitted with deal seats, stained and varnished; the pulpit is placed on a raised platform; the baptistery is under the platform; when used, part of the floor is wheeled forward, and thus the baptistery is opened, and the vestries connected with it become accessible from it.

The basement of the chapel is prepared for use, when required, either for a school or other purposes. A vacant portion of the site is reserved for a minister's house.

MELTON MOWBRAY CHURCH.

AT the recent meeting of the Leicestershire Architectural Society, to which we referred last week, the Hon. and Rev. J. Sandiland read a paper, forwarded by a member of the society, on Melton Church, a part of which we print.

Melton Church is the finest church in the county. The ground arrangement, the outline of the superstructure, and the details, possess a superiority, it is presumed, over every other.

It is a cruciform church, and is peculiar in its symmetrical proportions. The transept is of due length, a circumstance to which attention should be called, as in parochial churches this advantage is seldom found. Nor do we often meet with the two side aisles and clerestory carried out in this part upon the same plan as in the nave. But here we have them in perfection. These are matters essential to true grandeur, and have almost been confined to cathedrals.

In details there is variety, and each of the three Gothic styles is admirably exemplified. The clerestory and the upper part of the tower are of Perpendicular work, of the time of Henry VII. and are a specimen of the excellent masonry for which that period was remarkable. The Decorated side aisles, seen in this view, are rather poor; but this is fully atoned for by the beautiful porch, which, with its doorway and eight gorgeous niches, presents a show of elaborate sculpture of the time of Edward II. It is in very good preservation, with the exception of the pinnacles, which have perished, and have been superseded by a modern coping. Their restoration will ere long be accomplished, we trust, to the perfecting of this ecclesiastical gem. The lower part of the tower is Early English, and to this we particularly invite attention: it is, perhaps, the most perfect example to be met with.

The centre of the building is the place from which to see the clerestory, which must not be forgotten. It is peculiarly light and elegant, containing no less than forty-eight windows, each of three lights. The pendants and mouldings are almost innumerable.

It may occur to some to ask,—How came Melton to be honoured with the best architects and the best workmen in the thirteenth, fourteenth, and at the end of the fifteenth century?—for the fact that it was so is proved by these architectural remains. No doubt it was then a place of more importance than now. Medelton, as it was anciently called (or *Middle-Town*), is one of the oldest market towns in England. It had an endowed school at least as long ago as 1347. But we suspect its church is chiefly indebted to the great Priory at Lewes, which in the thirteenth century had the patronage, and to which priory the cell of twelve Cluniac monks at Melton was subject. And we must not forget its connection with the illustrious family of the Mowbrays.

Objects of interest, and some of great interest, are not wanting to the ecclesiologist.

Two important brasses only remain. Of the many that once did honour to the dead, the matrices or vestiges show where the *robbers of churches* have laid their sacrilegious hands. Incised slabs and ancient tombs exist, but they are partly concealed by modern work. There are three high-tombs, dating about 1300, 1400, and 1500, respectively commemorative of a Crusader, a Lady, and a Knight. The first has a recess in the south wall of the nave, as though a founder or benefactor of the church; the second, an alabaster enshrinement; the third, a Purbeck marble structure, formerly inlaid with a splendid brass, the outline of which enables the instructed student to recover the design. How delightful must have been the contrast of the two last, and how striking their appearance, when the "virgin white," and the shining sable, illuminated with glowing brass, did their best to honour these worthies, who were probably chief contributors to the magnificent temple wherein they have their resting-place!

The bells are eight in number: the six largest are old, and some have inscriptions. There are two fonts: one, of a modern character, has the well-known Greek inscription, that may be read either backward or forward: the other is a gift of the family of the late Richard Norman, Esq. and is a striking piece of church furniture from an elaborate design by Scott.

We come lastly to a portion possessing more than ordinary attraction—the Galilee Porch. The sculptured and ornamental parts, judging from the work, seem to have had the same artists as were employed at the south-west of the church at Gaddesby, in this county, and, if possible, surpass both in design and execution. It is much to be regretted that the porch is mutilated by the disappearance of the presumed pinnacles. Its piscina, locker, and other relics will be explored with much pleasure; and a question for interesting discussion will arise upon a singular window, and more especially four openings in the

walls. These latter resemble the mysterious Lychnoscope, a name still retained, though the theory it denotes is exploded by more conclusive evidence that it was "an outward confessional window for all comers." The apertures, to which we solicit attention, like the lychnoscope, had never been glazed, but have had a grating and shutter: they are not high from the ground, and had long been firmly blocked up by masonry. Much to the annoyance of the antiquarian, they have been recently opened and glazed. They furnish good examples to help farther investigation of the question; and if we be satisfied to regard them as outward confessionals, the number will not be staggering, provided we bear in mind that Melton was on the highway to the great leper hospital at Burton Lazars, which at certain times of the year would bring swarms of these "all comers." Besides the hospital, a spring at that place in great repute for the cure of leprosy attracted them. Moreover, the farm-house adjoining the churchyard, afterwards and to this day called the Rectory, was inhabited by fourteen chantry priests. We may conclude, therefore, that there would be no lack of applicants or of priests to confess them.

RECENT PATENTS.

THE following are selected from the *Mechanics' Magazine*, and other sources :—

Rowcliffe, E. Improvements in the manufacture of blocks or slabs for paving or building purposes. Dated Dec. 22, 1855. (No. 2906.) — The inventor takes natural asphalte and reduces it into small particles, and then places it in metallic or other moulds, without reducing it into a fluid state, and by hydraulic or other pressure makes it into the form required.

Grey, R. Improvements in machinery or apparatus for moulding bricks, tiles, and other similar articles. Dated Jan. 4, 1856. (No. 33.) — This invention relates to a peculiar construction of machinery for making bricks, pipes, tiles, chimney-pots, &c. by expelling the plastic material horizontally by continuous pressure through dies, placed at or near the bottom of the sides of a pug-mill. It consists in the employment of a vertical pug-mill fitted with an Archimedian screw, and furnished at the sides, at or near the bottom, with lateral orifices, each fitted with a suitable mould die. In front of each of these orifices is a travelling platform, running on wheels, and fitted with the ordinary rollers to ease the motion of the clay, which is introduced into the top of the pug-mill, and is pressed down by the rotation of the Archimedian screw.

Chaffer, T. and J. Ellis. Improvements in machinery for sawing and cutting slate, stone, coal, salt rock, or other minerals. Dated Dec. 6, 1855. (No. 2751.)—This invention is applicable to sawing or cutting blocks from the quarry, and consists—1. In sawing seams into minerals, by means of a circular saw, which travels along a bed plate fixed to the mineral to be operated upon. 2. In causing a cutting tool to move to and fro along a bed plate, and in so moving it as to cut a seam into the mineral, the said cutting tool being made to increase the cut by means of a setting-up screw or other mechanism.

Glover, F. R. A. Improvements in the construction of breakwaters, sea-walls, and other structures or foundations of structures which lie partially or entirely under water. Dated Dec. 18, 1855. (No. 2868.)—In order to construct the foundations of breakwaters, &c. where the natural bed of the sea or stream is composed of a shifting or moveable sand, the patentee fixes a number of pieces of framework by means of anchors, or by weighting them with ballast, and in order to insure a firm and sound structure, he bolts or connects the separate pieces together. The framework thus set up, serves gradually to collect the sands, &c. moved about by the waves, and to enclose and retain them, the deposit continually increasing until the framework is filled, and a compact mass has been produced on which any required superstructure may be erected. Secondly, he constructs the framework in the manner described, and gradually adds to the sand or materials collected a quantity of lime, cement, or concrete material during the process of collection, so as to expedite the solidification of the mass.

Cook, J. E. An improved composition for preserving exposed surfaces or surfaces liable to deterioration and decay. Dated Dec. 27, 1855. (No. 2931.) —In making up this composition, from two to six pounds of gum shellac are dissolved in every gallon of methylated spirit; or, instead of methylated spirit, wood spirit may be used.

Jennings, J. G. An improvement in the arrangement of the overflow-pipes of baths, wash-hand basins, and other vessels. Dated Dec. 10, 1855. (No. 2787.) —This invention consists in applying a syphon-pipe to the overflow openings or passages of a bath, a wash-hand basin, and any other vessel subject to like consequences of leaving the tap open.

Jennings, J. G. Improvements in connecting earthenware rain-pipes and soil-pipes of water closets, and in valve water-closets. Dated Dec. 10, 1855. (No. 2788.) — For connecting earthenware pipes, cast-iron junctions are used. Each junction is cast with an internal rib or projection of the thickness of the pipes, and on the outside there are lugs to fix the junction to part of a building. The junction is fixed in the following manner :—There is a grooving around or near the end of the pipe, so that when the end is introduced into the junction, and melted asphalte or cement is run into the socket between it and the pipe, there will be a good joint formed. In fixing the end of another pipe into the junction, a washer of vulcanized India-rubber is placed on the projection in the junction, and the whole of the surfaces are coated with red lead or suitable cement, and then the end of the other earthenware pipe is introduced, and a sound joint is made.

Davis, R. W. and D. Davis. An improved vice. Dated Dec. 12, 1855. (No. 2805.)—This invention comprises—1. The application to a vice of a beam having a ratchet which is engaged by a pawl, and having a spiral-faced head or the equivalent thereof, fitted with a loose cap having a corresponding face, &c. 2. An arrangement of crossed levers between the jaws, and their attachment so as to secure to the jaws an uniform leverage.

Gardner, J., J. C. and H. Improvements in glasses as applied for the transmission of light. Dated Dec. 7, 1855. (No. 2762.)—This invention consists in the use in the ordinary way over the light (gas or otherwise, as the case may be), for increasing its illuminating power, of a solid piece of glass having a cylindrical, elliptical, or other bore or opening through or near the centre for the light, such glass being externally more or less globular in form. Also in the use of hollow glasses filled with water or other transparent fluid.

Back, H. Improvements in the application of glass to decorative purposes. Dated Jan. 4, 1856. (No. 30.)—This invention consists—1. In adapting or applying hollow glass pillars or facings, gilded or coloured at the back (as described in a patent granted to the patentee, March 15, 1855); and 2. In adapting and applying fluted, corrugated, diapered, or otherwise suitably decorated sheet glass, gilded or coloured at the back as above, to various uses, either alone or in combination with the hollow glass pillars or facings above referred to.

Miscellanea.

SCHOOL KITCHENS.—Miss Banister, to whom the public are indebted for various suggestions, proposes a plan for a kitchen, to be superintended as a reward for good conduct by respectable women cottagers, in succession. Six children, from eight to ten years of age, are to attend to be taught;—one day how to make broth, soup, and gruel; on other days how to make meat puddings and boil potatoes, broil chops, bake loaves, pies, cakes, &c. The room, &c. to be kept in order by the children. The pay of the cottager to be one-fourth of the food cooked, the other three parts to be sent by the children to sick and aged people. From eight to ten years of age poor children would thus learn the duties of life, while gaining all the knowledge their simple career requires, in the school-room. Miss Banister "calls upon all who have the power to aid in getting undone that unfitting course of education for the labourer's children which has so unthinkingly been done, and is still doing." Although the foregoing plan is principally intended for our agricultural population, it is suggested that it might be easily adapted to towns by dividing them into sections of 150 to 200 children in each. "Miss Burdett Coutts having courageously come forward," says Miss Banister, "I am induced to offer my scheme to stay prevailing errors."

THE PARIS IMPROVEMENTS.—The *Revue Municipale* says :—Twenty dark and narrow streets, containing 249 damp and unhealthy houses, were demolished for the enlargement of the Central Halles. The prolongation of the Rue de Rivoli, which is now 3,146 mètres in length, and the clearing away the approaches to the Hôtel de Ville, caused the removal of thirty-two narrow streets and 587 houses. When the question is to rebuild, it will be readily understood that the difference between the number of old and new houses must be very great. It was found necessary to abandon a large space of ground to the public thoroughfares, 22 mètres of width for the Rue de Rivoli, and 30 mètres for the Boulevard de Strasburg. The houses to be rebuilt cannot be at all like those which were demolished, most of the latter belonging to old Paris, and being most unhealthy. During the last six years nearly 2,000 houses have been demolished in Paris, while the number of new ones is not more than 650. The destruction of these 2,000 houses has led to the removal of more than 80,000 persons.

WATERLOO-WITH-SEAFORTH BOARD OF HEALTH.—Mr. W. A. Richardson, an assistant in the Borough Engineer's Office, Liverpool, was unanimously elected on the 8th instant by the Local Board of Health for the district of Waterloo-with-Seaforth (near Liverpool), as surveyor and inspector to the Board. There were forty applications for the situation.

RECOVERY OF POSSESSION OF HOUSES BY THE COUNTY COURTS.—In the new County Courts Act about to come into force, there are several clauses of considerable importance to landlords, extending the recovery of premises, where the rent does not exceed 50*l*. a year, in a summary manner, and preventing actions of ejectments in the superior courts. Where the term has expired in property where neither the value of the premises nor the rent is more than 50*l*. by the year, a plaint may be entered, and in default of the tenant giving up the same, the bailiff may enter and give the landlord possession. In plaints for the recovery of possession, the plaintiff may recover his rent where the same does not exceed 50*l*. Farther, the Act provides that where there is a half-year's rent due, and the landlord has a right to re-enter, possession may be given by the County Courts.

NEW FIELD FOR FEMALE LABOUR. — A few months since, a series of letters appeared in the *Times* and other London journals, showing that the most available means of rescuing the female toilers of this country from their present abject position, was the introduction of the art of watchmaking among them, and for which pursuit it was shown by the well-known watchmaker of Cheapside, Mr. John Bennett, by whom the idea was first started, the female hand was highly suitable. The subject is now receiving attention on the part of many provincial manufacturers, and ere long the public, we are glad to learn, may look forward to the realization of this excellent suggestion, at least to some extent. It is by female employment that Switzerland has become so celebrated for watchmaking, and it is hard to see why England, the chief improver of this branch of art, should not be able to cope with Switzerland in this respect.

THE COVENTRY SCHOOL OF ART. — The works executed by the students of this school have been on view during the week, in St. Mary's Hall, Coventry, and large numbers have attended, particularly in the evening, and been much gratified by the character of the drawings, paintings, &c. exhibited. The examination was conducted by Mr. H. A. Bowler, the Government Inspector, who was assisted by Mr. Henry Rafter, the Head Master of the school; and proof of the proficiency of the pupils, and the skill of their instructor, appeared in the number of medals awarded, —eighteen; the greatest number given in any former year having been eleven. Besides these, seven works were distinguished by "honourable mention." Sir Joseph Paxton having offered a prize of ten guineas for the best ribbon designs, for which the ladies' class were to compete, ten were sent in, and they attracted considerable attention and comment. This prize has not yet been awarded.

PROPOSED TESTIMONIAL TO MR. MECHI.—Friends of Mr. Mechi, who have long been desirous of presenting that gentleman with a testimonial of their appreciation of his efforts to assist in agricultural progress, as well as a slight acknowledgment of his undeviating hospitality at his annual gatherings, are now taking steps to carry out their object.

ANOTHER ACCIDENT AT THE WELLINGTON BARRACKS.—On Monday an accident occurred at the Wellington Barracks in St. James's-park, by the falling of a mass of earth, the effect of which was that one of the unfortunate men engaged in the excavation, of the name of Henry Redman, lost his life. Several men, who were in the employment of the contractor for the erection of the barracks, were engaged in digging the foundations for the officers' barracks, and a spacious tank to contain a large quantity of water. They had got to the depth of about 12 feet, where a layer of sand was met with. The men were about to leave their work, but just as they were doing so the gravel gave way, when immediately the mass of earth on that side fell, and covered four men who were at the bottom of the shaft. Three of them were promptly extricated, and were found to have received no serious injuries. In about two hours afterwards the fourth man, Henry Redman, was got out, but life was extinct.

INVENTION FOR SAWING PAVEMENT. — We understand the Earl of Caithness, among his other mechanical inventions, has constructed a machine for sawing stone, which is likely soon to be put in practical use in this county. The invention consists of an endless saw or knife affixed to a metallic belt which is run over two drums, and may be driven by any power—steam, water, or hand. We trust the invention may be completely successful, as it is now high time the method of stone-sawing at present adopted in Caithness were superseded by some more easy and less labourious system.—*John O'Groat's Journal.*

BLAST OF 12,000 TONS.—The great limestone quarries at Penderryn, in the Vale of Neath, have been the scene of a blast which has detached the enormous mass of 12,000 tons of solid rock. An old chamber was cleared out to an extent of 10 yards, and half a ton of powder was placed therein. The match having been lighted, in eleven minutes the explosion took place, which drove out a mass of rock 20 yards square, and immediately the whole face of the rock, 120 feet in height, rolled down and filled the quarry below. The calculations range as high as 15,000 tons, stones of 250 tons being detached separately. These quarries are the property of Mr. Wm. Crawshay, and supply great quantities of limestone to the adjacent ironworks.

MASONS' STRIKE. — We are glad to hear that the masons who had struck in Mr. Kelk's employ have returned to their work, and that the strife has been happily brought to a termination. The questions in dispute were, as stated in the letter of the masons to Mr. Kelk, of the 6th August, as follows:—First—That they should have the full privilege of four o'clock time on Saturday. Second—That they should not be asked to work piecework. The special arrangement of Mr. Kelk's establishment, as to the four o'clock time on Saturday, Mr. Kelk had conceded, in the first instance and at once; so that the actual and only cause of difference was that of piecework; and this the workmen, after conference with the members of the Builders' Society, on the 11th instant, have wisely withdrawn unconditionally.

CHANCERY-LANE IMPROVEMENTS.—The first stone of the new building for the Law Union Fire and Life Insurance Company, within one door of Fleet-street, has been laid. The front is to be of stone, and Elizabethan in character. The works are being carried out by Mr. Myers, from the designs of Mr. J. Wornham Penfold.

PROPOSED EXHIBITION OF LOCAL ART AT MANCHESTER.—It is intended to have an exhibition of the works of local and native artists in the new picture gallery which is being erected in Peel Park, adjoining the present museum. Mr. David Chadwick, borough treasurer of Salford, according to the local *Courier*, was the originator of the scheme. A meeting of artists was held in the mayor's parlour, Town-hall, Salford, on Thursday in last week, to consider the suggestion, and to appoint a committee, &c. Resolutions promotive of the object in view were unanimously passed, and Mr. Hammersley, the head-master of the Manchester School of Art (who was among those present), was elected chairman of the new committee. It was deemed desirable that the exhibition should be open before the Art Treasures Exhibition at Old Trafford, and remain open for some time; and it was accordingly resolved to open the exhibition on the first Monday in March; artists to be at the expense of forwarding the pictures they intend to exhibit to the museum building, free of cost, the executive committee undertaking to insure the pictures and return them carriage free: with respect to the works of deceased artists, the committee to bear the whole expense of collecting and returning them.

"ROADSIDE RESTING-PLACES."—The writer of a pamphlet bearing this title, known in the literary world as the authoress of "Home Truths for Home Peace," has carried her philanthropic project into execution near the town of Shepton Mallet, by erecting large iron seats by the roadside, on the turnpike-roads, for the accommodation of travellers. The chairs are large enough to seat five or six persons, and are covered with short texts of Scripture.

IMMORTALITY BY PRIVATE CONTRACT. — Affixed to a post at the corner of one of the numerous streets which intersect each other at the back of the Jardin d'Hiver, at Lyons, is seen the following announcement:—"To be sold by private contract, the right of giving the purchaser's name to this street."

DIRT AND VICE.—The *Glasgow Mail* declares that "Glasgow has been filthier in 1856 than in any year in the last decade;" and "the stenches, so intolerable in the summer and autumn, have at certain periods been worse, if possible, than ever they were before." Glasgow is also said to be the most drunken city in the empire. "So true it is (comments the *Gateshead Observer*), the more dirty the more vicious (or the more vicious the more dirty, whichever way you like to put it)."

INCREASED VALUE OF LAND AND PROPERTY IN SCOTLAND.—By tables of returns which have been obtained by the Board of Trade it appears that the acreage of Scotland is now set down at 20,049,462 acres. In 1674 this acreage and the house property on it were valued for land and houses at 319,281*l.*; but in 1855-56 they were valued at 8,155,972*l.* The valuation for the county of Aberdeen in the former year was 19,418*l.*: last year it was 526,640*l.*: the county of Ayr was 15,967*l.* and 640,926*l.*; but the county of Lanark showed the greatest increase, the valuation in 1674 being only 13,511*l.* while in the latter it was 870,562*l.*

CONCERTS FOR THE PEOPLE.—An inaugural entertainment was given on Monday last, at St. Martin's-hall, and was largely attended by an audience not quite so quiet as was deserved. Mr. Leigh Hunt presided. It was the committee's intention to give between the parts of the musical portions a literary interlude, consisting of readings from the old poets, and the introduction was written by the chairman of the evening, and read by Mr. Stocqueler. Whether, as the audience said, they could not hear, or they did not wish to hear such readings, we will not say, but they certainly would not listen even when a more powerful voice was called into requisition. The musical selection was a very good one, and gave great pleasure to those assembled. Miss Birch, Mr. Donald King, and others took part in it.

AN IMPROVING LANDLORD.—Mr. James C. Harter, of Broughton Hall, Lancashire, purchased, in 1852, an estate of some 1,500 acres, lying for about three miles along the verge of the Shannon, and contiguous to the bridge of Banagher. The estate of Esker was, at this time, in a deplorable condition. Mr. Harter paid for it 8,000*l.* and he has since expended in improvements about 4,000*l.* The farms were all remodelled, and substantial aid given to every tenant to improve his residence and offices. As a preliminary improvement, draining was extensively set on foot, and new roads made, opening up the estate, and giving value to the land which it was impossible formerly to reach. Every cottage and farmhouse is neatly whitewashed and kept clear of manure heaps and cesspools. Persons who saw this property a few years ago, would scarcely recognize it now. The swamps and morasses have been converted into excellent land, and the callows are worth treble their former value.

PROPOSED NEW MARKET AT MANCHESTER.—The markets committee of the Manchester corporation have advertised for plans for a new butchers' market, to be erected in the place of the old shambles at Shudehill. Two prizes have been offered by the committee, and eleven different plans have been sent in for competition. The decision of the committee, according to the local *Courier*, will be made known early next month.

THE VULCANIZATION OF INDIA-RUBBER.—This has become a very important and extensive process, better known hitherto in America for the multiplicity of its uses than with us. Vulcanized rubber is worked in the plastic state, especially by the aid of steam and boiling water, just as if it were plastic clay, and is in this state moulded at once into all sorts of forms, such as those of workmen's tool handles, or compounded with other ingredients, so as to assume the aspect of bronze, ivory, buckhorn, cameos, &c. For chisel-handles, and such like, subject to concussion, the vulcanite possesses the rare quality of permitting the hardest blows being dealt with the hammer or mallet indifferently without splitting or other injury. Gum elastic, or India-rubber, as remarked in an interesting article on the subject in the *Mechanics' Magazine*, can be readily mixed or combined with almost every other substance. It may be mixed with other gums, oils, coal-tar, carbon, and with the earths and oxides, or pulverized metals and ores. It can likewise be combined with all fibrous products. It is compounded in the manufacture with many of the above substances, for the purpose of obtaining particular advantages for special uses. Ground cork and other light materials are sometimes mixed with the gum to increase the bulk and make the articles light. The oxides of metals, their filings and pulverized silicas, will give imitations of marble. The fibre of cotton or the dust of different woods will afford simulations of wood of greater or less gravity, as may be required. The combining of plumbago gives the crayon, oxide of zinc produces lithographic stone, and so on, *and on.*

A NEW CITY ON THE UPPER MISSISSIPPI. — A correspondent of the *Morning Herald*, in St. Cloud, Minnesota, writes of that new and flourishing town. One year ago it contained only two shanties in the way of houses. It has now between 300 and 400 inhabitants, and upwards of ten frame buildings, among which are six stores, mechanics' shops of various kinds, and one steam saw-mill that cuts 10,000 feet per day, which cannot half supply the demand. There are many more buildings in progress, and under contract to be finished this year, among which are the county buildings, a steam flouring-mill, two churches, a hotel 50 feet by 60, three stories high. There are several fine quarries of granite within a short distance of the town, also good lime rocks, clay for making brick, &c. for building purposes, which are soon to be put in use. There is a fine spring of water, capable of furnishing a town of 15,000 inhabitants. The "city" stands at the head of the steamer navigation of the Mississippi. There is a great demand for labourers. Mechanics command from two dollars fifty cents to three dollars per day; common day labourers from one dollar fifty cents to two dollars fifty cents per day. Carpenters are in great demand.

DISGRACEFUL STATE OF THE NELSON MONUMENT AT YARMOUTH. —The *Bury Post* gives a lamentable account of one of the very few monuments ever erected to the honour and the memory of an admiral who so immensely contributed to the naval renown of Britain, as did the glorious Nelson. In these days of sickening re-duplications of unnecessary monuments to Wellington, it is really an infamous disgrace to the country that the memory of its other noble sons, and its gratitude to the dead, so quickly fade. The Yarmouth monument to Nelson is fast going to utter ruin. The terrace at the base is greatly dilapidated: the walls are forced several inches outwards, from being choked with sand and rubbish: the terrace platform is much sunk, disjointed and damaged: the caryatides supporting the roof are all injured: the figure of Britannia has ominously lost the trident: the unsightly poles which surround the monument are all rotten: in short, the whole is a sad picture of decay and desolation. More than all ought what follows to bring the blush of shame to the cheek of every one interested in the honour and glory of his country: we quote from the paper already alluded to:—"About thirty years ago the terrace was relaid, at an expense of about 50*l.* by the brave old veteran James Sharman, who 'shows' the monument, and who was one of those who carried the dying Nelson down into the cockpit, after he received his fatal wound, at the battle of Trafalgar. Since that time he (Sharman) has spent about 20*l.* about it. These sums he paid out of the money which he received during the first ten years of his 'keeping' the monument; but since then, unfortunately, the annual amount which he has obtained for doing so has been so small, that it has not sufficed to maintain him and his family. Were not this the case, he would, he says, do all that is required to be done to preserve the monument without asking the country for a single farthing towards the expense!"

ANTIQUARIAN DISCOVERY IN RUSSIA.—A discovery has just been made in the village of Alexandropol, in the government of Ecatherinslow, which has caused a sensation among archæologists. M. Luzancho, the director of the Museum at Kertch, has found in a small mound the catacombs of the Scythian kings. Numerous articles in gold, silver, bronze, iron, earthenware, &c. have been discovered there. The existence of the Gherros, or Necropolis of the Scythian monarchs, spoken of by Herodotus, is thus proved.

TENDERS

For the Convent of the Christian Retreat, Peckham; Messrs. Wigley and Nicholl, architects:—

W. Jackson	£2,870	0	0
White	2,684	0	0
Thompson	2,680	0	0

For rebuilding the White Hart public-house, Hooper-square, Whitechapel, for Messrs. Truman and Haubury; Mr. James Harrison, architect. Quantities supplied by Mr. W. J. Gardiner:—

Withers	£1,128	0	0
Morter	1,085	0	0
Tolley	1,077	0	0
Brake	1,055	0	0

For building Trinity Presbyterian Church, De Beauvoir-town; Mr. T. E. Knightley, architect:—

Hocken	£5,995	0	0
Pollock and McLennan	5,172	0	0
Batterbury	5,098	0	0
M. A. Wood and Sons	4,893	0	0
J. and J. Coleman	4,655	0	0
Dove, Bros.	4,345	0	0
E. Clarke	4,240	0	0

Delivered to the St. Pancras Vestry for new kitchens, scullery, and laundry buildings; Mr. Booth Scott, architect. Quantities supplied by Mr. C. J. Shoppee:—

Phillips	£2,434	0	0
H. W. Rowe	2,300	0	0
R. Thomas	2,260	0	0
Furnival	2,160	0	0
Williams	2,142	0	0
Palmer	1,970	0	0
W. T. Purkiss (accepted)	1,835	0	0

For new Male and Female Dormitories, Bath Rooms, &c. for St. Pancras:—

Phillips	£1,737	0	0
H. W. Rowe	1,500	0	0
Thomas	1,475	0	0
Williams	1,434	0	0
Furnival	1,379	0	0
W. T. Purkiss	1,275	0	0
Palmer	1,223	0	0

TO CORRESPONDENTS.

"H. R." (we shall be glad to receive some details)—"T. E. B. B. S."—"E. W. O."—"P."—"J. L."—"J. R."—"Messrs. G."—"G. W."—"C. R. W."—"F. O. W."—"S. G."—"R. O. M."—"W. A. B."—"Mr. H."—"J. H. R. and C. H." (partially atmospheric)—"P. P."—"D. M."—"W. W."—"A. P." (works on acoustics generally)—"W. C. B."

***"Books and Addresses."*—We are forced to decline pointing out books or finding addresses.**

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